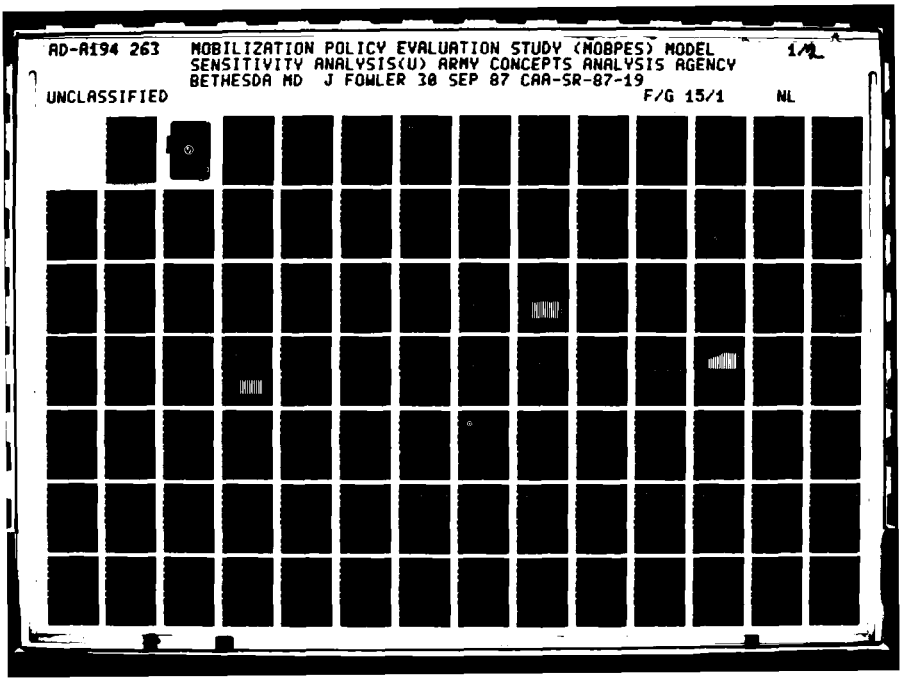
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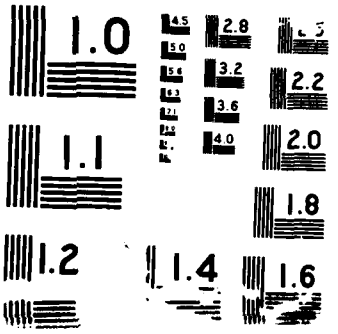
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STUDY REPORT
CAA-SR-87-19

MOBILIZATION POLICY EVALUATION STUDY (MOBPES) MODEL SENSITIVITY ANALYSIS

SEPTEMBER 1987

PREPARED BY
STRATEGY AND PLANS DIRECTORATE

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CAA

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This study is a sensitivity analysis of the Mobilization Base Requirements Model (MOBREM). MOBREM uses anticipated workloads to compute CONUS base manpower required to mobilize, train and prepare Army units for overseas movement and to sustain Army bases during full mobilization. MOBREM contains parameter files reflecting Army mobilization policies. The effects of policy changes can be analyzed by varying selected parameter values. Using experimental design and statistical analysis the study identifies the parameters having the greatest impact on CONUS-base manpower requirements and subsequently uses these parameters to formulate regression equations to enable quick estimates of aggregated manpower requirements.

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STUDY REPORT
CAA-SR-87-19

MOBILIZATION POLICY EVALUATION STUDY

(MOBPES)

MODEL SENSITIVITY ANALYSIS

September 1987

Prepared by

STRATEGY AND PLANS DIRECTORATE

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DEPARTMENT OF THE ARMY
US ARMY CONCEPTS ANALYSIS AGENCY
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REPLY TO
ATTENTION OF

01 MAR 1988

CSCA-SPM (5-5d)

MEMORANDUM FOR: Deputy Chief of Staff for Personnel,
ATTN: PEMS-RO, Ft Belvoir, VA 22060-5587

SUBJECT: Mobilization Policy Evaluation Study (MOBPES)

1. Memorandum DAMO-FD, 2 January 1986, subject: Mobilization Base Requirements Model (MOBREM) Studies and Model Transfer, requested the U. S. Army Concepts Analysis Agency (CAA) to conduct a study identifying and analyzing the policies/parameters in MOBREM that produce the largest impacts on manpower requirements. Memorandum PEMS-RO, 6 August 1986, subject: Transfer of Proponency for the Mobilization Base Requirements Model (MOBREM) (with enclosures), notified CAA of the transfer of proponency for this study from the Deputy Chief of Staff for Operations and Plans (DAMO-FD) to the U. S. Army Manpower Requirements and Documentation Agency (USAMARDA), a field operating agency of the Office, Deputy Chief of Staff for Personnel (ODCSPER).

2. The enclosed final report documents our sensitivity analysis of nine sets of policies/parameters that have the greatest effect on manpower requirements.

3. This Agency expresses appreciation to all commands and agencies which have contributed to this study. Questions and/or inquiries should be directed to the Chief, Mobilization and Deployment Division (ATTN: CSCA-SPM), Strategy and Plans Directorate, US Army Concepts Analysis Agency, 8120 Woodmont Avenue, Bethesda, Maryland 20814-2797.

Enclosure

Philip E. Lower
for E. B. VANDIVER III
Director

CAA	**MOBILIZATION POLICY EVALUATION STUDY (MOBPES) MODEL SENSITIVITY ANALYSIS**	**STUDY SUMMARY CAA-SR-87-19**

THE REASON FOR PERFORMING THE STUDY was to perform a sensitivity analysis of the Mobilization Base Requirements Model (MOBREM) and to develop a methodology for evaluating the effect of parameter changes on manpower requirements.

THE PRINCIPAL FINDINGS are:

(1) The length of the workweek is by far the most important factor with more than a 250,000-person savings using a 60-hour workweek as opposed to a 40-hour workweek.

(2) Fixing workweek at 60 hours, the training load adjustment factor is the most important parameter, followed by the M-day to D-day relationship and the table of distribution and allowances (TDA) fill level. To minimize MOBREM manpower requirements output, the training load adjustment factor and TDA fill level inputs should be set at the minimum of their acceptable ranges.

(3) Although setting the MOBREM training load and the TDA fill levels to their minimum acceptable values reduces output manpower requirements, the resultant impact on capability of the continental United States (CONUS) TDA to fulfill its mobilization mission is not reflected in MOBREM.

(4) The M-day to D-day relationship has its greatest effect at M+50 and M+60, manpower requirements being largest when M-day equals D-day.

(5) Regression equations derived herein can provide timely estimates of aggregated CONUS support manpower requirements for non-AMC depot-unique codes within the range of data.

THE MAIN ASSUMPTION is that the Department of the Army mobilization planning systems (e.g., Mobilization Troop Basis Stationing Plan (MTBSP), The Army Authorization Document System (TAADS), Total Army Equipment Distribution Program (TAEDP), Army Training Requirements and Resources System (ATRRS)) provide authoritative sources on which to base MOBREM's requirement computations.

THE PRINCIPAL LIMITATIONS which affect the findings are: (1) MOBREM operates in a requirements mode and does not constrain requirements by the availability of resources or by facility capabilities, and (2) MOBREM inputs do not consider expansion of the force structure or the industrial base.

THE SCOPE OF THE STUDY

(1) MOBREM computes CONUS base manpower support requirements for a North Atlantic Treaty Organization (NATO)/Warsaw Pact scenario requiring full mobilization.

(2) MOBREM produces manpower requirements for 11 major CONUS Army commands, 133 mobilization installations, and 211 Army Functional Dictionary support codes. Manpower requirements are computed for 13 mobilization time periods: 10, 20, 30, 40, 50, 60, 90, 120, 150, 180, 210, 240, and 270 days after mobilization.

THE STUDY OBJECTIVES are: (1) to perform a sensitivity analysis of MOBREM, (2) evaluate mobilization policies using MOBREM parameters, and (3) provide insights for policy improvements.

THE BASIC APPROACH was first to identify the parameters and variables to be analyzed, and to develop an experimental design for running MOBREM which was manageable within the constraints of the computer resources available. The MOBREM runs and the statistical analyses were done in stages. The first stage screened packages of parameters to determine which packages affect the CONUS support manpower requirements the most. The second stage analyzes in more depth the parameters in the most important packages and develops regression equations which relate these parameters to manpower requirements.

THE STUDY SPONSOR was initially the Deputy Chief of Staff for Operations and Plans, Headquarters, Department of the Army (HQDA); during the study, the sponsor changed to the Deputy Chief of Staff for Personnel, HQDA, who established the objectives and monitored study activities.

THE STUDY EFFORT was directed by Dr. Janet Fowler, Strategy and Plans Directorate.

COMMENTS AND QUESTIONS may be sent to the Director, US Army Concepts Analysis Agency, ATTN: CSCA-SP, 8120 Woodmont Avenue, Bethesda, Maryland 20814-2797.

Tear-out copies of this synopsis are at back cover.

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CHAPTER 1

EXECUTIVE SUMMARY

1-1. PROBLEM. The Mobilization Base Requirements Model (MOBREM) was developed to provide guidance for the Army's mobilization table of distribution and allowances (MOBTDA). MOBREM computes mathematically derived, workload-based continental United States (CONUS) manpower required to mobilize, train, prepare for overseas movement, and sustain the Army during full mobilization. MOBREM contains 61 parameter files which reflect Army mobilization policies. By varying the values of a parameter, it is possible to analyze the effects of policy changes. Prior to this study no sensitivity analysis of MOBREM with respect to these parameters had been performed, and no methodology existed for evaluating mobilization policies. The Mobilization Policy Evaluation Study (MOBPES) is the first study to analyze MOBREM. MOBPES performs a sensitivity analysis of MOBREM and presents a methodology for evaluating the effect of parameter changes on manpower requirements.

1-2. BACKGROUND. The Deputy Chief of Staff for Operations and Plans (DCSOPS) in a 2 January 1986 memorandum (Appendix B) tasked the US Army Concepts Analysis Agency (CAA) to use MOBREM to analyze which policies significantly affect mobilization support manpower requirements. A 6 August 1986 memorandum (Appendix B) transferred the MOBREM computer programs and data processing to the Navy Regional Data Automation Center (NARDAC) for the production phases of the Mobilization Base Resource Planning System (MOBREPS). CAA has retained a copy of MOBREM for conducting Army studies. The 6 August 1986 memorandum also transferred the proponency of MOBREPS and the policy study, MOBPES, from DCSOPS to the Deputy Chief of Staff for Personnel (DCSPER), US Army Manpower Requirements and Documentation Agency (USAMARDA). As a result of this transfer and in agreement with USAMARDA the objectives and essential elements of analysis were modified to read as they appear in this study.

1-3. SCOPE. MOBREM computes CONUS base manpower support requirements for a NATO/WARSAW Pact scenario requiring full mobilization. MOBREM produces manpower requirements for 11 CONUS major Army commands (MACOMs), 133 mobilization installations (see Appendix D) and 212 Army Functional Dictionary (AFD) support codes (see Appendix E). The AFD assigns a code to each identifiable work center reflected in TDA documents. Manpower requirements are computed for 13 mobilization time periods: 10, 20, 30, 40, 50, 60, 90, 120, 150, 180, 210, 240, and 270 days after mobilization.

1-4. OBJECTIVES OF THE STUDY. The objectives of this study are (1) to perform a sensitivity analysis of MOBREM, (2) evaluate mobilization policies using MOBREM parameters, and (3) provide insights for policy improvements.

1-5. LIMITATIONS. MOBREM operates in a requirements mode and does not constrain requirements by the availability of resources or by facility capabilities. MOBREM inputs do not consider expansion of the force structure or the industrial base.

1-6. TIMEFRAME. The version of MOBREM used in this policy evaluation study is the April 1986 version which was the latest update of MOBREM at the time the MOBPES policy runs were started.

1-7. KEY ASSUMPTIONS. The MOBREM model assumes that the Department of the Army (DA) mobilization planning systems (e.g., MTBSP, TAADS, TAEDP, ATRRS) provide authoritative sources on which to base the requirements computations.

1-8. METHODOLOGY. The methodology followed in MOBPES is first to identify the parameters and variables which are to be analyzed. Next an experimental design is developed which can be managed within the contraints of the computer resources available. The MOBREM runs and the statistical analyses are done in stages. The first stage screens packages of parameters to determine which packages affect the CONUS support manpower requirements the most. The second stage analyzes in more depth the parameters in the most important packages and develops regression equations which relate these parameters to manpower requirements for all the time periods. After the analysis, the results are interpreted and documented. Figure 1-1 illustrates this process.

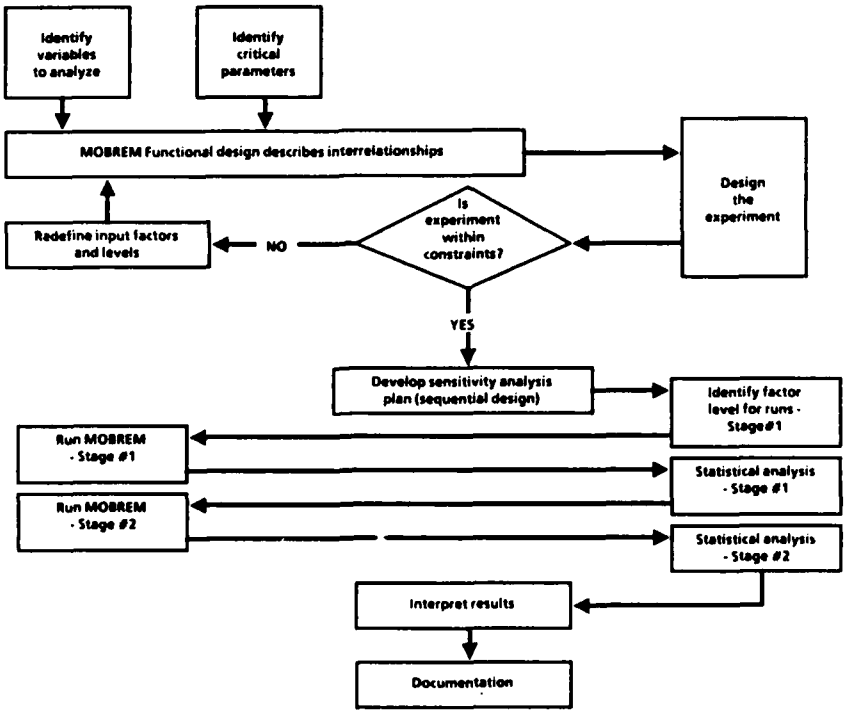

Figure 1-1. Study Methodology

1-9. SUMMARY OF RESULTS. The following paragraphs discuss the essential elements of analysis (EEA) for the study and provide other observations on study results.

a. Essential Elements of Analysis (EEAs)

(1) Which parameters have the greatest effect on manpower requirements? USAMARDA identified nine packages of parameters which were of greatest interest: D-day to M-day, workweek, training, show rate, hospital, deploying MTOE, nondeploying MTOE, TDA, and other personnel. Of these packages, workweek is by far the most important factor on manpower requirements, with no more than a 250,000-person difference between a 40- and 60-hour workweek. When workweek is held constant at a 60-hour week, the training load adjustment factor becomes the most important parameter, followed by the D-day to M-day relationship and TDA fill level.

(2) For the most sensitive parameters what are the recommended values? The workweek length parameter has by far the most effect on manpower requirements. To minimize the CONUS support manpower requirements, a 60-hour workweek should be used. Given a 60-hour workweek, the training load adjustment factor and the TDA fill level should be set at 0.80, the minimum of the ranges provided by USAMARDA. Although no one value of the D-day to M-day relationship minimizes the manpower requirements for all time periods, this study has shown that its greatest effect on manpower is at M+50 and M+60.

(3) What is the impact of these recommended values on manpower requirements? Using a 60-hour workweek saves more than 250,000 spaces in manpower requirements over using a 40-hour workweek. Given a 60-hour workweek, setting the training load adjustment factor and the TDA fill level at 0.80 reduces the manpower requirements compared to baseline values by as much as 12 percent. The reduction in manpower requirements at M+10 is 3 percent. The reduction increases to 8 percent at M+20 and continues to increase until M+120, at which time it stabilizes at 12 percent.

b. Observations

(1) Although manpower requirements for CONUS support can be reduced by setting parameter values to their minimum acceptable levels, as is the case for training load adjustment factor and TDA fill level, MOBREM does not reflect the impact of these changes on the quality and/or quantity of workload accomplishment. MOBREM currently is capable of generating manpower requirements for given workload inputs, but it cannot reflect level of quality of work or lack of work accomplishment when these manpower requirements are not met.

(2) Anomalies in computed manpower requirements when the D-day to M-day relationship is varied require further investigation. There is no clear, consistent relationship as this parameter is systematically varied from D-day equals M-day to D-day equals M-day plus 30 days.

Although manpower requirements all increase regardless of parameter setting as the time after D-day increases, the rates of increase do not vary systematically as the difference between D-day and M-day is systematically increased.

(3) The regression equations derived in this study as functions of principal parameters are good estimators of aggregate manpower requirements within the range of data collected. Using a micro-computer, manpower requirements can be generated by these equations in a very timely, economical fashion compared to exercising the MOBREM. For many types of aggregated analyses, the tradeoff of some accuracy for timeliness can be very beneficial. It should be noted, however, that because of smaller data samples and the possibility of greater variability in data, similar regression equations for individual AFD codes may not be possible. This consideration would require further analysis.

1-10. CONTENTS OF THE REPORT. The following chapters supported by the appendices describe the methodology development and the study results. Chapter 2 addresses the overall approach to the conduct of the study. Chapter 3 discusses the results of the first step of the analysis. Chapter 4 describes the results of the second stage of the analysis; while Chapter 5 provides a brief summary of the study, responds to the EEA, and presents observations derived from the analysis.

CHAPTER 2

METHODOLOGY

2-1. INTRODUCTION. Chapter 2 provides an overview of the analytical methodology developed for evaluating the effect of parameter changes on manpower requirements and performing a sensitivity analysis of MOBREM. A discussion is included on the variables and parameters chosen for analysis, the experimental design, and the plan for analysis.

2-2. METHODOLOGY OVERVIEW. An overview of the methodology used in MOBPES is contained in Figure 2-1. The variables and parameters which are to be analyzed are first identified. Next an experimental design is developed which can be managed within the constraints of the computer resources available. The MOBREM runs and the statistical analyses are carried out in stages after which the results are interpreted and documented. The blocks in Figure 2-1 will be discussed in detail in the following paragraphs.

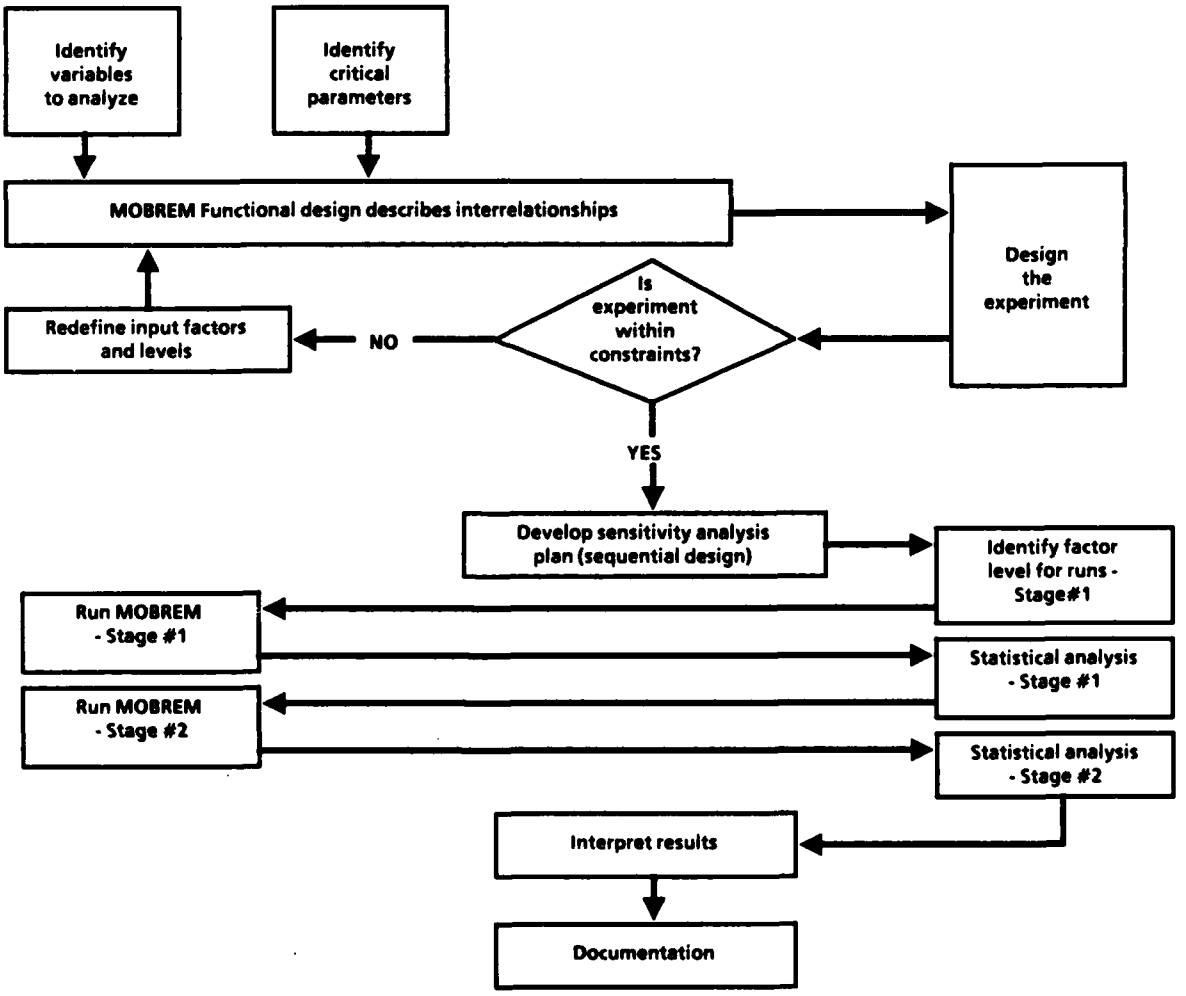

Figure 2-1. Methodology Overview

2-3. IDENTIFY VARIABLES

a. MOBREM Output. Table 2-1 illustrates the information contained on a MOBREM installation manpower requirements report. Reports are produced for 11 MACOMs, 133 mobilization installations, 212 AFD codes, and 13 mobilization time periods. In this example, HAA is the AFD code for inpatient medical care; LDFK is automotive maintenance. MOBREM computes the support manpower requirements for an installation and AFD code for 10, 20, 30, 40, 50, 60, 90, 120, 150, 180, 210, 240, and 270 days after mobilization. For each AFD code, a MOBTDA average is also computed.

Table 2-1. MOBREM Installation Manpower Requirements

MACOM	Instl	MOBREM AFD code	Requirements at time M +						MOBREM average
			0	10	20	30	...	270	
TC	FT DIX	HAA	0	125	125	199	...	253	261
		LDFK	0	64	79	84	...	82	85

b. USAMARDA Steering Committee. A steering committee chaired by USAMARDA was tasked to determine what variables were the most important to analyze. The steering committee requested that (1) the manpower requirements be aggregated across installations, and (2) all AFD codes which are not Army Materiel Command (AMC) depot unique be analyzed. Appendix D lists the MOBREM installations, Appendix E the MOBREM AFD codes. Examples of depot unique codes are Letterkenny's supply control and Sacramento's inventory management.

2-4. IDENTIFY PARAMETERS

a. MOBREM Overview. To understand MOBREM's parameters, it is helpful to have an overview of the underlying structure of MOBREM (see Figure 2-2). MOBREM's workload module is comprised of four interrelated workload submodules: personnel, medical, equipment, and AMC. For example, the numbers of military personnel, civilians, dependents, etc., affect the number of patients. Similarly, the number of patients affect the number of medical support personnel needed. The number of trainees and other personnel affect the equipment needed. The workloads calculated in the workload module are passed to the manpower conversion module. From the conversion module, the manpower requirements are output to the MOBREM report as well as passed back to the workload module for use in the calculations for the next time period. Examples of personnel parameters are the TDA, deploying and nondeploying MTOE unit fill levels, percentage of prisoners, and

dependent drawdown times and rates. Equipment parameters include unit, training, and base operations equipment-fill levels and amounts onhand on M-day. Patient rates and hospital-fill levels can be varied in the medical module. The AMC module contains 22 parameters, including shipping priorities and outloading capabilities.

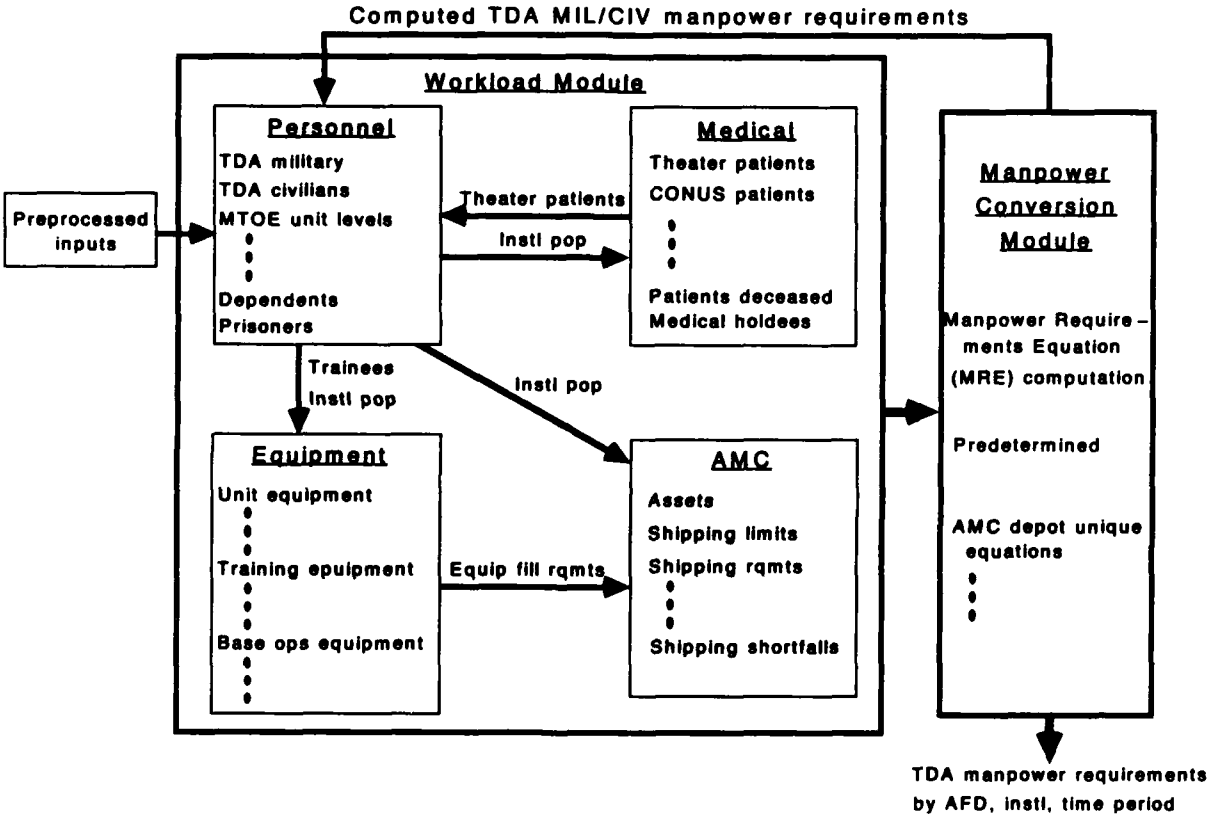

Figure 2-2. MOBREM Functional Components

b. Steering Committee. The USAMARDA steering committee was asked to determine which of the 61 MOBREM parameters were the most critical to analyze. USAMARDA determined nine parameter packages which are listed in Table 2-2. The MOBREM parameter code is indicated in parentheses. The MOBREM parameters within a package are set in combination with one another. A complete description of each parameter is contained in Appendix F under its MOBREM parameter code.

Table 2-2. Parameter Packages

A.	D-day in Relation to M-day (P01)
B.	Workweek Workweek Length (E01) Productivity Adjustment Factor (E22)
C.	Training Workload Training Load Adjustment Factor (E02) Training Equipment Onhand on M-day (E08)
D.	IRR, IMA, Retiree Show Rates (E04)
E.	Hospital Patient Rates Hospital Percent Fill and Percent Military Patients on M-day (I08) CONUS Patient Rates (I09)
F.	Deploying MTOE Levels of Fill Days of Fill/Train/POM Table (P05) Personnel Fill Level (P07) Equipment Fill Level by Category (P12) Personnel Onhand on M-day (E06) Equipment Onhand on M-day by Category (E09)
G.	Nondeploying MTOE Levels of Fill Days of Fill Table (P06) Personnel Fill Level (P08) Equipment Fill Level by Category (P13) Personnel Onhand on M-day (E07) Equipment Onhand on M-day by Category (E10)
H.	TDA Level TDA Fill Level (P09) Base Operations Equipment Fill Level by Category (P14) Base Operations Equipment Onhand on M-day (E11) TDA Military and Civilian M-day Manning Levels (I02)
I.	Other Personnel Levels Prisoner Proportion (I01) Transients Proportion (I03) Personnel Control Facility Individuals Proportion (I05)

(1) D-day in Relation to M-day. For the April 1986 run of MOBREM, the day of hostilities (D-day) was set as 10 days after mobilization day (M-day). USAMARDA asked the study team to look at the effect of D-day being 0 to 30 days after mobilization.

(2) Workweek. On M-day the workweek is 40 hours per week with 1,740 manhours available annually. (See code E01 in Appendix F for the calculation of this figure). The user of MOBREM selects the time period in which the Army changes the length of the workweek. A time period is a 10-day interval with time period 1 being M-day plus 1 day (M+1) through M-day plus 10 days (M+10). For the April 1986 run, the workweek was changed to 60 hours with 2,940 manhours available annually for time period 1 and later. The productivjty adjustment factor accounts for changes in worker productivity wnen the length of the workweek changes. The current guidance is summarized in Table 2-3. This guidance can be extrapolated for other workweek lengths. In future model runs, USAMARDA plans to follow DOD Instruction 1109.1, which prescribes a 60-hour workweek for the first 30 days of mobilization and a 48-hour workweek at D+31 and after.

Table 2-3. Productivity Adjustment Factor

Length of workweek	Percent increase in manhours available	Percent increase in productivity
60	72.9	41.5
48	29.2	16.6

(3) Training Workload. The training workload parameters of interest are the training load adjustment factor and training equipment onhand on M-day. The training load adjustment factor is expressed as a percentage of the Army Training Requirements and Resources System (ATRRS) mobilization input. This parameter allows the user to make macro-level adjustments to the ATRRS produced mobilization training input. The training equipment onhand on M-day parameter allows the user to specify the M-day onhand training equipment levels by training equipment category. Setting the onhand levels to less than or greater than 100 percent allows the user to assess the mobilization impact of lower or higher peacetime authorized levels. For the April 1986 run, these training factors were all set to 100 percent.

(4) IRR, IMA, Retiree Show Rates. The Individual Ready Reserve (IRR), individual mobilization augmentee (IMA), and retiree show rates are the proportion of these individuals preassigned to mobilization billets that will actually show up at the scheduled time. This parameter allows the user to specify the show rates for three categories of the inactive Army.

(5) Hospital Patient Rates. The hospital workloads are expressed as the percentage of the maximum possible number of filled beds which are filled on M-day and the percentage of military hospital patients on M-day. The CONUS patient rates include rate of admission to the hospital, decreased rates of patients, discharge rates of patients, and return to duty rates of patients.

(6) Deploying MTOE Levels of Fill. The deploying modification tables of organization and equipment (MTOE) levels of fill parameters are (a) the length in days of the fill, training, and preparation for overseas movement (POM) periods as a function of the component and the time of deployment of the unit; (b) the proportion of personnel structure strength to which deploying MTOE units will be filled; (c) the proportion of equipment requirement to which deploying MTOE units will be filled for each unit category and each unit equipment category; (d) the proportion of personnel structure strength onhand on M-day for deploying MTOE units by unit category; and (e) M-day deploying unit equipment strength for each unit category (deployment date by component) and for each unit equipment category.

(7) Nondeploying MTOE Levels of Fill. For nondeploying MTOE units, the level of fill parameters are (a) the length in days of the fill period for nondeploying MTOE units as a function of the component of the unit; (b) the proportion of personnel structure strength to which nondeploying MTOE units are to be filled; (c) the proportion of equipment requirement to which nondeploying MTOE units will be filled for each component and each unit equipment category; (d) the proportion of personnel structure strength onhand on M-day for nondeploying units by component; and (e) M-day nondeploying unit equipment strength for each unit equipment category.

(8) TDA Level. The parameters for the table of distribution and allowances (TDA) levels are (a) the proportion of model computed TDA manpower requirements to which installation personnel levels are to be filled; (b) the proportion of base operations equipment requirements to which TDA units will be filled for each base operations equipment category; (c) M-day base operations equipment strength for each base operations equipment category; and (d) the proportion of the actual onhand levels which will be used.

(9) Other Personnel Levels. Other personnel considerations are the percentage of (a) the military population which is in prison; (b) the Army that is in transient status; and (c) the Army that is being held in a personnel control facility (PCF).

2-5. EXPERIMENTAL DESIGN

a. Computer Resources. Computer resources are the largest constraint on the type of experimental design which can be used for the MOBREM runs. For example, if four parameter packages were totally analyzed at three levels each (i.e., a base case, a low case, and a high case) a complete factorial design, analyzing all the packages and their interactions, would require 81 runs of MOBREM. MOBREM takes 8 to 10 hours to run plus an additional 2 hours to generate reports, extract and format data. Ten runs is the practical upper bound on the number of runs which can be expected in a month. In light of this constraint, a Plackett-Burman sequential approach to the policy runs was used. A Plackett-Burman design is a special fractional factorial design which in a minimum number of runs allows estimation of the effect of the parameter packages. No interactions can be analyzed.

b. Parameter Values. Table 2-4 shows the parameter values provided by USAMARDA for the parameters which are varied in the MOBREM runs. Not all of the 25 parameters originally indicated are changed in the runs. For example, the productivity adjustment factor (E22) was not changed in the workweek package. The E22 file contains the productivity adjustment factors. When workweek length (E01) is changed, the appropriate value in the E22 file is accessed. Although the values of E22 are not changed, both parameters are used together as a parameter package. The baseline values are the parameter values used in the April 1986 MOBREM run which was processed by NARDAC for USAMARDA. For example, the baseline value for the number of days between M-day and D-day is 10 days. USAMARDA is interested in knowing what effect the relationship between D-day and M-day has on manpower requirements, D-day being between zero and 30 days after M-day. The parameter for workweek is a triplet, the first number indicating the time period (in 10-day intervals), the second the number of hours per week, and the third the annual manhours available. The low parameter value is a 40-hour workweek. The baseline and high values are a 40-hour week on M-day, 60-hour week after M-day. The training load adjustment factor (E02) is a percentage of ATRRS mobilization input. The baseline is 100 percent. Low is 80 percent; high is 120 percent. The other parameter packages have similar high and low values.

Table 2-4. Parameter Values

Package	MOBREM parameter	Low	High	Baseline[a]
A D-day to M-day	P01-D-day to M-day	0	30	10
B Workweek	E01-Workweek	00,40,1740	00,40,1740 01,60,2940	00,40,1740 01,60,2940
C Training	E02-Load adJ factor E08-Equip onhand M-day	0.80 0.80	1.20 1.20	1.00 1.00
D Show rate	E04-IRR show rate -IMA show rate -Retiree show rate	0.56 0.80 0.72	0.84 1.00 1.00	0.70 1.00 0.90
E Hospital	108-% Full on M-day -% Military on M-day	0.56 0.16	0.84 0.24	0.70 0.20
F Deploying MTOE	P07-Personnel-fill level P12-Equipment-fill level	0.68 0.80	1.02 1.20	0.85 1.00
G Nondeploying MTOE	P08-Personnel-fill level P13-Equipment-fill level	0.80 0.80	1.20 1.20	1.00 1.00
H TDA	P09-TDA-fill level P14-Base ops-equip fill	0.80 0.80	1.00 1.20	1.00 1.00
I Other personnel	101-% Prisoners 103-% Transients 105-% PCF individuals	0.002194 0.0224 0.01898	0.003290 0.0336 0.02848	0.002742 0.0280 0.02373

[a]MOBREM parameter value April 1986.

c. Plackett-Burman Design. Table 2-5 indicates the actual Plackett-Burman design used. The order of the runs is not important. The high value for a package means that all the parameters in the package are set at their high values, similarly for the low values of a package. Each package is run at its high level six times and at its low value six times. For further explanation of this design see Plackett, R. L. and Burman, J. P., "The Design of Optimum Multifactorial Experiments," Biometrika, Volume 33, pp 305-325, 1946.

Table 2-5. Plackett-Burman Design

Run #	Packages								
	A	B	C	D	E	F	G	H	I
1	+	-	+	-	-	-	+	+	+
2	+	+	-	+	-	-	-	+	+
3	-	+	+	-	+	-	-	-	+
4	+	-	+	+	-	+	-	-	-
5	+	+	-	+	+	-	+	-	-
6	+	+	+	-	+	+	-	+	-
7	-	+	+	+	-	+	+	-	+
8	-	-	+	+	+	-	+	+	-
9	-	-	-	+	+	+	-	+	+
10	+	-	-	-	+	+	+	-	+
11	-	+	-	-	-	+	+	+	-
12	-	-	-	-	-	-	-	-	-

+ High level.
- Low level.

2-6. STATISTICAL ANALYSIS. The statistical analysis and running of MOBREM is broken up into two stages. The first stage is a screening of the nine parameter packages using the Plackett-Burman experimental design to determine which packages most affect the support manpower requirements. The second stage looks in more detail at the packages determined to have the largest effects. Chapter 3 discusses the first stage analysis, Chapter 4 the second stage, and Chapter 5 summarizes the findings and conclusions.

CHAPTER 3

STAGE I ANALYSIS

3-1. INTRODUCTION. This chapter discusses the analysis of the effects of parameter packages on manpower requirements. It describes the results of varying package parameter levels and rank-orders the packages according to the manpower requirement's sensitivity to them. It also provides insights into which packages are responsible for the most variation in manpower requirements. Finally, it discusses the effects of package parameter variation on individual AFD code requirements.

3-2. MOBREM RUNS. The MOBREM model was run according to the Plackett-Burman experimental design. Since the model is deterministic, no replications of the runs were performed. The total manpower requirements (excluding the AMC depot unique codes) for each of the 12 runs are plotted in Figure 3-1. There is a general consistency among these runs with no surprising behavior detected. The manpower requirements build as units move into the installations, then level off as the units move through. After M+150 the requirements have become stable as the installations sustain their efforts. One notable pattern is seen. The top six curves are the runs with 40-hour workweeks, the bottom six with 60-hour workweeks. As will be discussed later, workweek has the largest effect on manpower requirements.

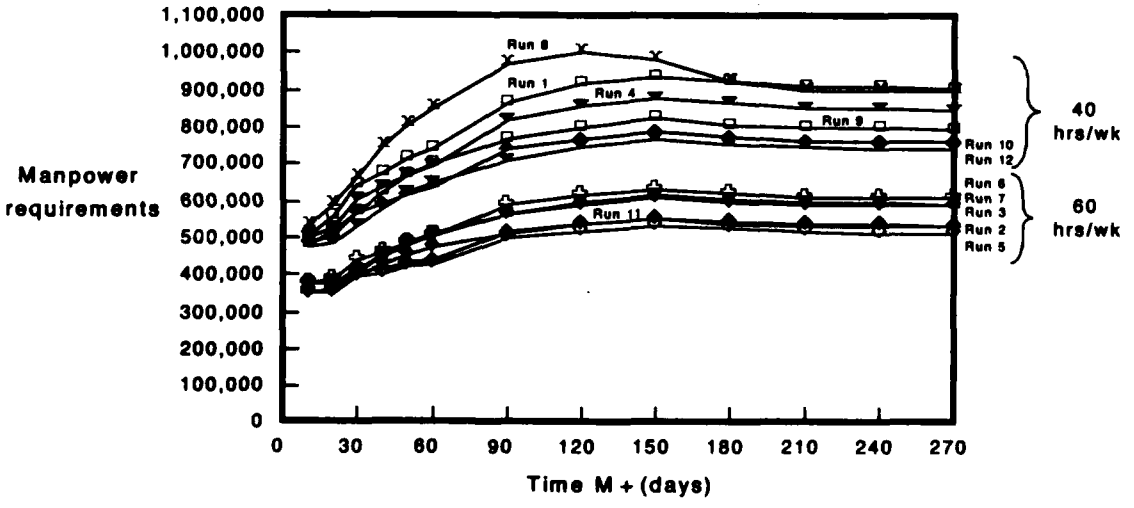

Figure 3-1. Stage 1 Runs

3-3. PACKAGE EFFECTS. The high mean level for a parameter package is the average of the manpower requirements by time period for the six runs when the package is run with high values. Similarly, the low mean level is the average when the package is run with low values. The mean levels are calculated using only the nondepot unique AFD codes. For example, the low mean level for workweek is the manpower requirements averaged pointwise for the runs which used 40-hour weeks. The high mean level is the average using the 60-hour per week runs. For each package, the effect of the package on manpower requirement can be estimated as the difference between the high mean level and the low mean level. The pointwise difference between the curves is the effect of the package on manpower requirements over time. The mean levels and effects for the nine packages are listed in Appendix G and are discussed in the following paragraphs.

a. D-day to M-day. Figure 3-2 shows the high and low mean levels for the D-day to M-day package. The D-day to M-day graph shows that changing the D-day to M-day relationship from 0 to 30 days affects the manpower requirements primarily between M+30 and M+90. The effect on manpower requirements outside that timeframe is very small.

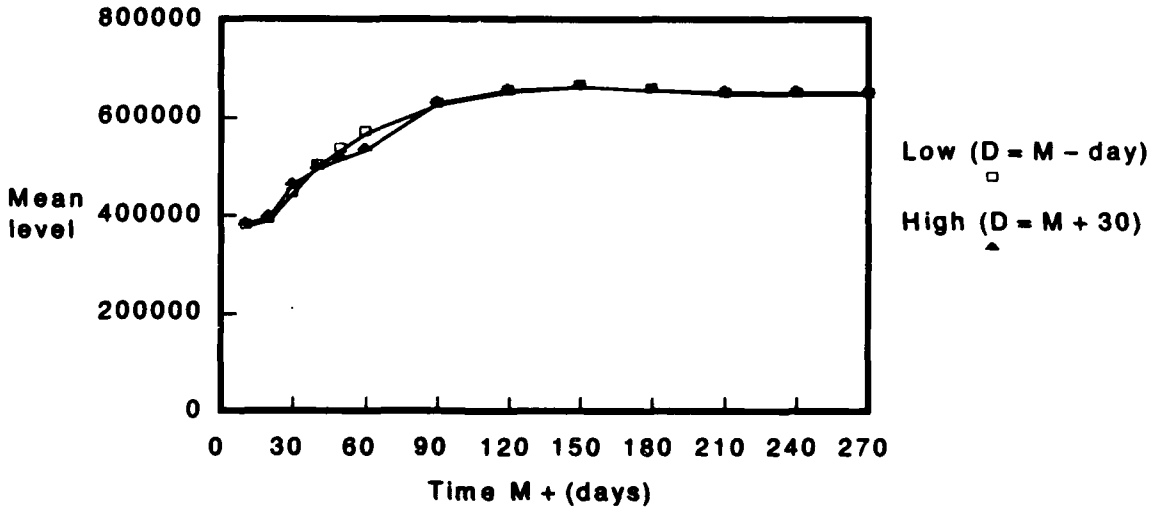

Figure 3-2. D-day to M-day Level Means

b. Workweek. The effect of workweek increases until M+150 and levels off with a difference in manpower requirements of almost 250,000 people as shown in Figure 3-3. The manpower requirements to sustain using a 60-hour week is approximately 529,000 people. With a 40-hour week, the requirement is about 772,000.

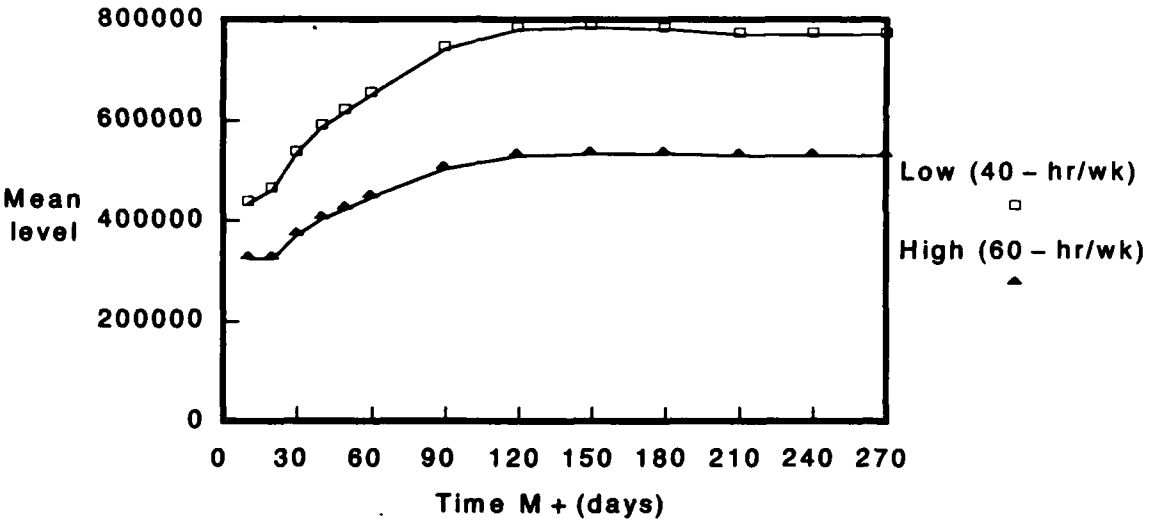

Figure 3-3. Workweek Level Means

c. **Training.** The parameters in the training package at the low level are 80 percent of the baseline; at the high level, they are 120 percent. The effect due to the training package increases until about M+150 and then levels off at about 101,000 people. See Figure 3-4.

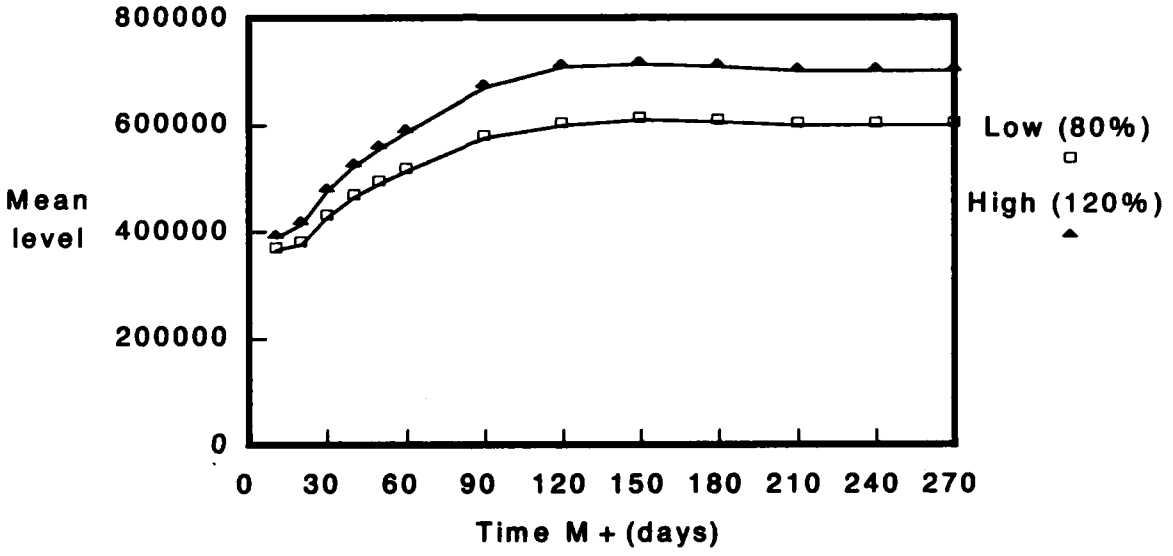

Figure 3-4. Training Level Means

d. Show Rate. The show rate package has a small effect on manpower requirements. The maximum effect is slightly less than 12,000 at M+120. See Figure 3-5.

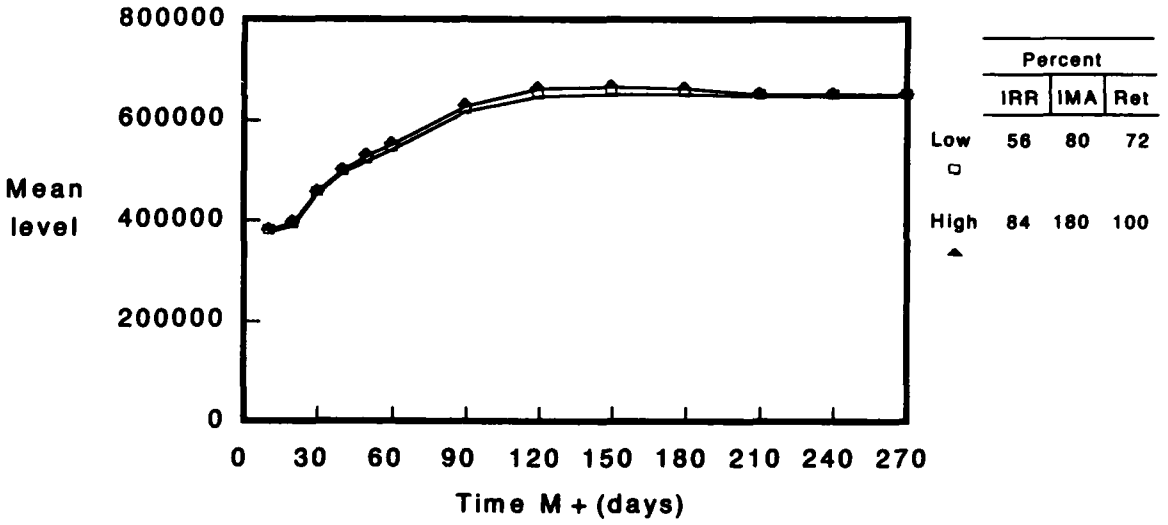

Figure 3-5. Show Rate Level Means

e. Hospital. The hospital package has one of the smallest effects as seen in Figure 3-6. The maximum effect occurs at M+60 with less than a 3,500-person effect.

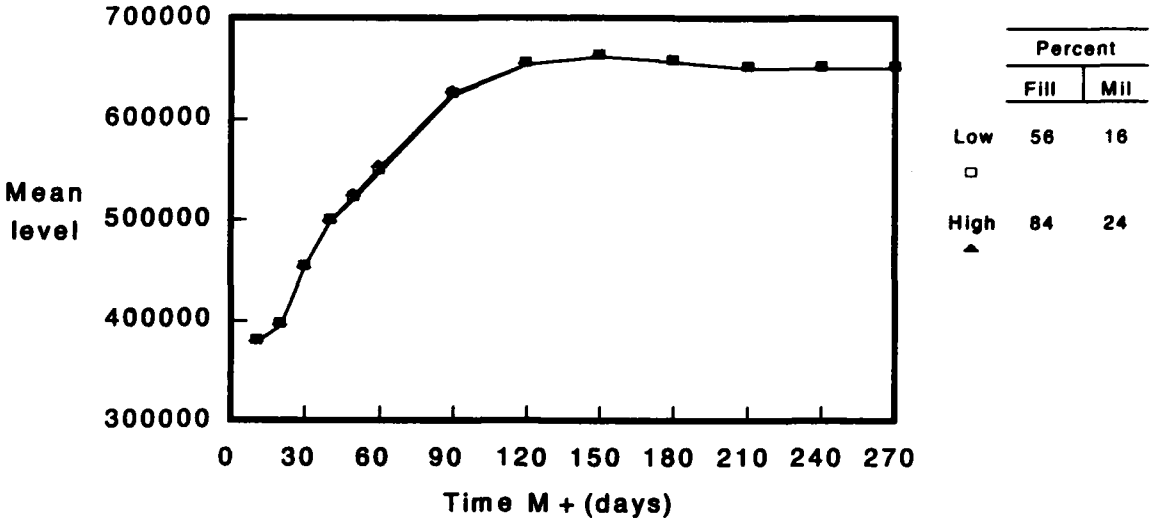

Figure 3-6. Hospital Level Means

f. Deploying MTOE. In Figure 3-7 at M+120 the deploying MTOE package has its maximum effect. The support manpower requirements are less for the high parameter values because more people are deployed when the parameter values are high, resulting in fewer people at the installations to support.

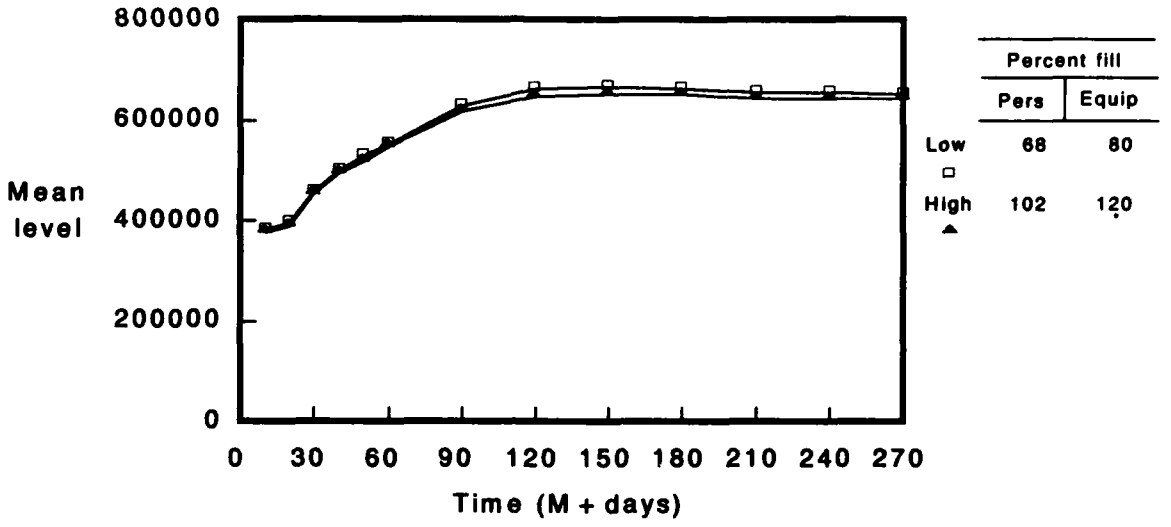

Figure 3-7. Deploying MTOE Level Means

g. Nondeploying MTOE. The nondeploying MTOE package also has its maximum effect at M+120 with an effect of over 20,000 people. See Figure 3-8. The support manpower requirements are larger for the high level of the parameter since more people will need support on the installation.

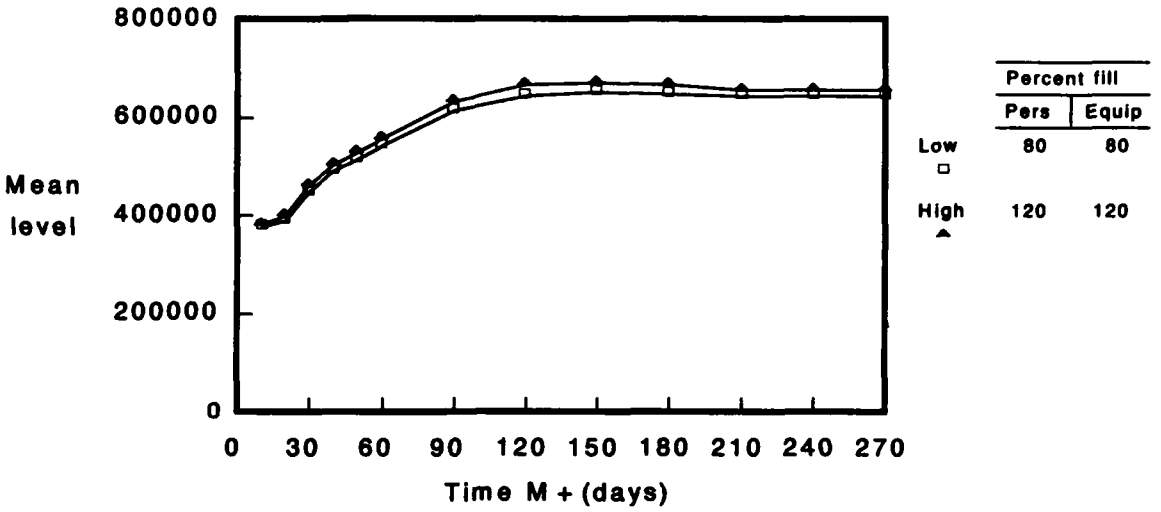

Figure 3-8. Nondeploying MTOE Level Means

h. TDA. The TDA package's maximum effect occurs at M+150 with over 44,000 people as shown in Figure 3-9. As with the nondeploying MTOE package, the support manpower requirements for the TDA package are greater for the large values of the parameters.

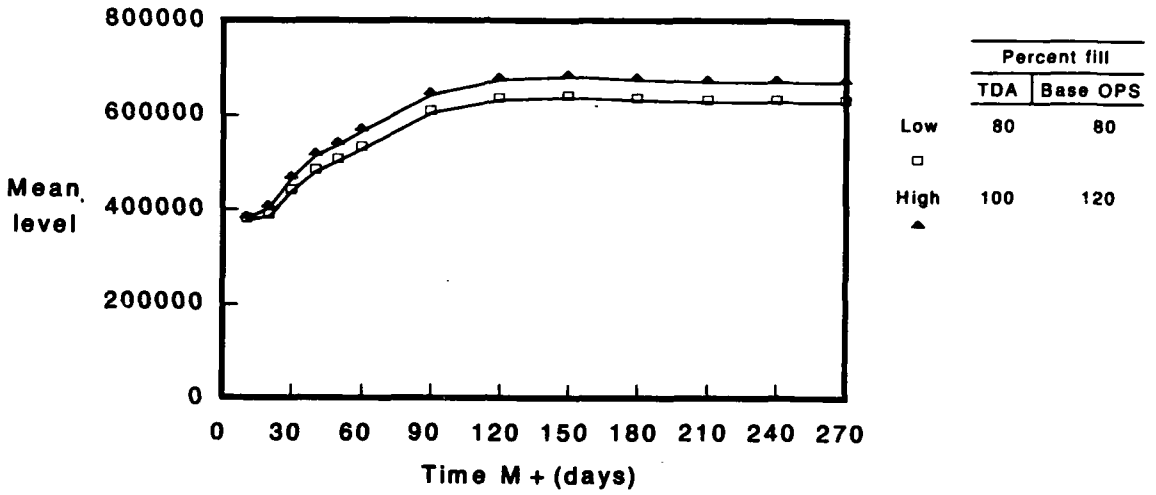

Figure 3-9. TDA Level Means

i. **Other Personnel.** Figure 3-10 shows that the other personnel package has little effect on manpower requirements. Its maximum effect is about 3,000 people at M+60.

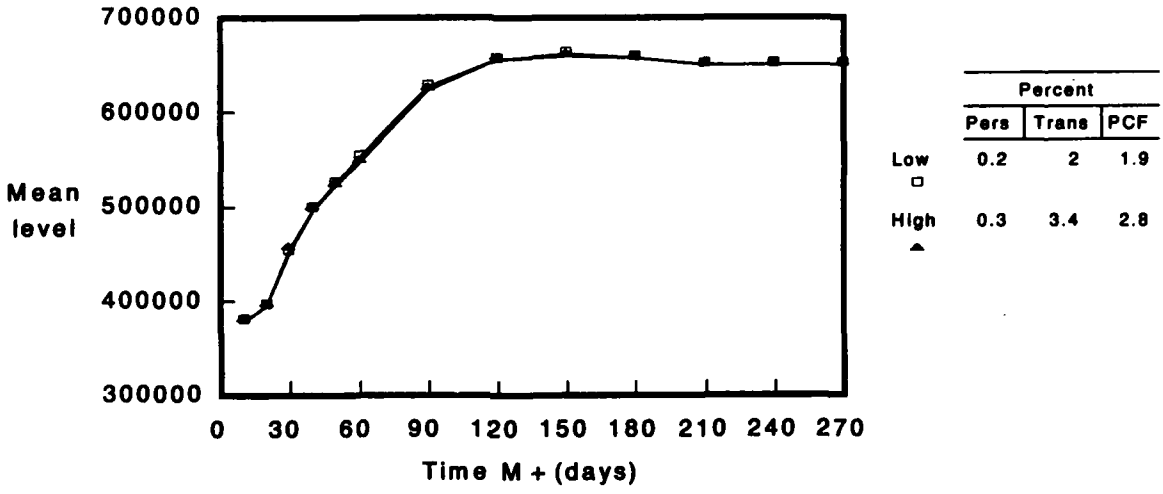

Figure 3-10. Other Personnel Level Means

3-4. PACKAGE RANKINGS. An indicator of the maximum effect a package has on manpower requirements is the largest absolute difference between the high and low level mean values over time. Table 3-1 lists the maximum absolute difference for each package and the ranking of these values. Workweek has by far the largest effect on manpower requirements. Training also has a large effect. TDA and the D-day to M-day packages have the next largest effects, followed by the nondeploying MTOE and deploying MTOE packages. The hospital and other personnel packages have very little effect on manpower requirements.

Table 3-1. Ranking of Packages

Package	Max (diff)	Ranking
A D-day to M-day	29,318	4
B Workweek	250,897	1
C Training	106,601	2
D Show rate	11,949	7
E Hospital	3,468	8
F Deploying MTOE	13,698	6
G Nondeploying MTOE	20,713	5
H TDA	44,197	3
I Other personnel	3,010	9

3-5. PERCENT VARIATION. The data from the Stage 1 runs was analyzed to determine the percentage of the variation accounted for by each package. For each nondepot-unique AFD code, the amount of variability explained by each package was computed using statistical analysis of variance (ANOVA). For each time period, the variation explained by a package is defined to be the sum over all AFD codes of the variation for that package. Also for each time period, the total variation is defined to be the sum of the package variations over all packages. For a particular package, the percentage variation is the package's contribution to total variation divided by the total variation. Figure 3-11 shows the percentage variation associated with the D-day, TDA, training and workweek packages for each time period. Due to rounding error, the percentages do not add to 100 percent for all time periods. The show rate, hospital, deploying MTOE, nondeploying MTOE, and other personnel parameter packages are not shown because their percentage of variation for all time periods is zero. The zeros do not mean that there was no variation, just that the magnitude of the variation is very small compared to the total variation. Workweek explains the largest percentage of the variation, followed by the training. Workweek is somewhat more important in the earlier time periods than in the later periods. The relative importance of training slowly increases until M+120, then stabilizes at 39 percent. The TDA package basically accounts for 2 to 3 percent. The D-day to M-day relationship accounts for a nonzero percentage of variability between M+30 and M+90, accounting for up to 9 percent of the variation.

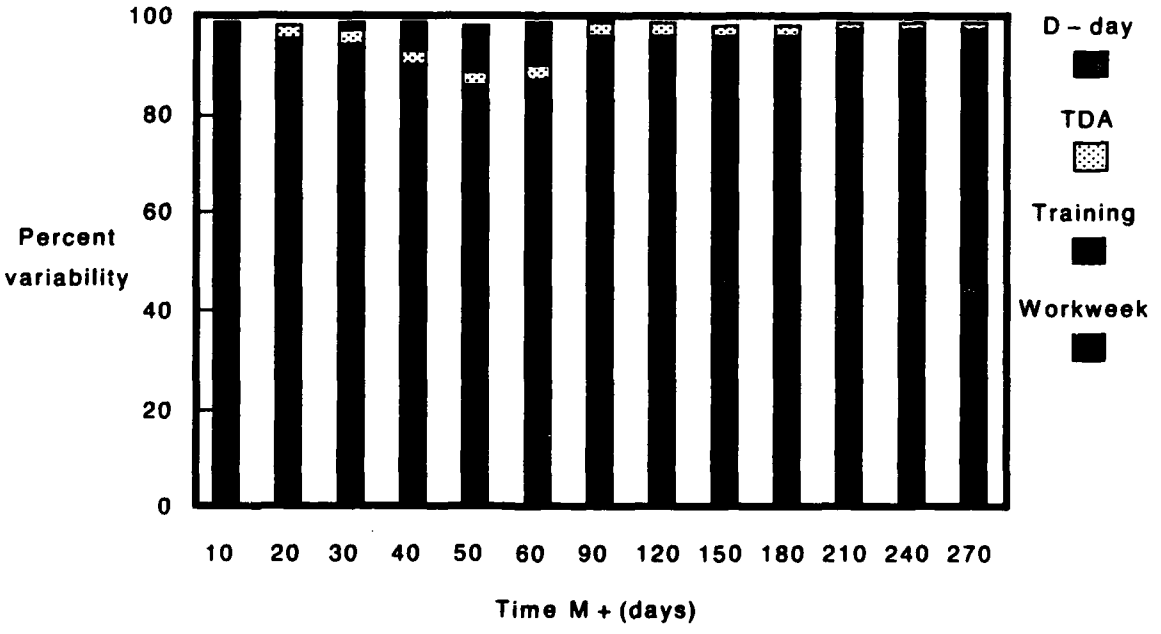

Figure 3-11. Relative Importance of Packages

3-6. AFD CODE SENSITIVITY. In addition to analyzing the aggregated AFD codes, the AFD codes are analyzed individually. For all but 15 AFD codes, the workweek explained the most variation for all time periods. Table 3-2 lists the AFD codes for which a package other than workweek explains the most variation for at least one time period. The blank time periods indicate that workweek explains the most variation. The letter indicates the package which is the most important for that time period. For example, for AFD code Bulk Fuel and Lubrication Activities (LET), the D-day to M-day package is the most important for M+40, M+50, M+60 and M+90. For the other time periods, workweek is the most important package. In all cases, if workweek is not the most important package, it is the second most important, accounting for the second largest percentage of the variation. For the medical codes listed, the D-day to M-day relationship is more important than workweek for M+50 and M+60. The other personnel package is most important for Personnel Control Facilities Activities (PBFFD) and for activities concerned with Confinement of Military (SBC). For codes PBQ, TB, TDE, and TG, the training package is most important.

Table 3-2. AFD Codes Sensitivity to Packages

AFD code	Description	Time M + (days)												
		10	20	30	40	50	60	90	120	150	180	210	240	270
HAB	Inpatient Surg Care						A							
HAD	Pediatric Care					A	A							
HAE	Orthopedic Care					A	A							
HAFY	Psychiatric Care					A	A							
HG	Health Services/Staff					A	A							
LBJ	Med Laundry Service					A	A							
LFDU	Commodity Gps Maint						C	C	C	C	C	C	C	C
LDFX	Weapons Maintenance							C	C	C	C	C	C	C
LET	Bulk Fuel and Lub Act				A	A	A	A						
PBFFD	PCF Activities	I	I	I	I	I	I	I	I	I	I	I	I	I
PBQ	Mil Pers Office Mgmt	C	C	C	C	C	C	C	C	C	C	C	C	C
SBC	Confine Mil Offenders	I	I	I	I	I								
TB	Instruction	C	C	C	C	C	C	C	C	C	C	C	C	C
TDE	School Support	C	C	C	C	C	C	C	C	C	C	C	C	C
TG	Training Support						C	C	C	C	C	C	C	C

A D-day to M-day
C Training
I Other personnel

3-7. CONCLUSIONS. The first stage of this study began a sensitivity analysis of MOBREM with respect to the parameters selected by USAMARDA. The runs have yielded stable results with the length of the workweek the predominant factor. The effect of increasing the workweek to 60 hours upon mobilization, instead of continuing a 40-hour workweek, is a decrease in manpower requirements of approximately 250,000 people. A methodology has been developed for screening parameter packages to determine the important factors affecting manpower requirements. By ranking the maximum absolute differences between the low and high mean levels, the important packages have been determined to be workweek, training, TDA, and the D-day to M-day relationship. The second stage analysis will explore in more detail the effects of the parameters in these packages.

CHAPTER 4

STAGE II ANALYSIS

4-1. INTRODUCTION. This chapter discusses the analysis of the effects on manpower requirements of varying individual parameters. Similar to the analysis of parameter of package effects, it describes the experimental design and the sensitivities of results to varying the principal parameters isolated from the most important packages identified in Chapter 3. The parameters are rank-ordered according to requirement sensitivity and their contribution to variation of results is depicted. In addition, regression equations are derived as functions of the principal parameters to enable quick and easy prediction of manpower requirements.

4-2. EXPERIMENTAL DESIGN

a. Parameters. After reviewing the first stage analysis, USAMARDA requested that workweek be fixed at 60 hours for the second stage analysis. This decision is a result of recognizing that workweek has an overwhelming effect on manpower requirements and deciding that the computer resources in the second stage should be used to analyze the effects of other important packages. USAMARDA also requested that individual parameters rather than packages of parameters be analyzed in the second stage. The parameters in the second through fourth ranked packages are of the most interest, i.e., the D-day to M-day parameter, the training workload parameters (training load adjustment factor, training equipment onhand on M-day factor), and the TDA level parameters (TDA fill level, base operations equipment fill level). See Table 4-1.

Table 4-1. Second Stage Parameters

A	D-day in Relation to M-day (P01) Training Workload Parameters
C1	Load Adjustment Factor (E02)
C2	Equipment Onhand on M-day (E08) TDA Level Parameters
H1	TDA Fill Level (P09)
H2	Base Operations Equipment Fill (P14)

b. Fractional Factorial Design. Using a fractional factorial design, the effects of these five parameters and the interactions between pairs of these parameters can be analyzed in 16 MOBREM runs. USAMARDA expressed an interest in including the deploying and nondeploying MTOE parameters in the analysis. To analyze those parameters and the interactions in addition to the other five would require probably in excess on 100 MOBREM runs which is prohibitive. The fractional factorial design used for stage 2 is given in Table 4-2. The order of the runs is unimportant; they are numbered sequentially starting with 13 to avoid confusion with the 12 first-stage runs.

Table 4-2. Fractional Factorial Design

Run	A: D-day to M-day	Training		TDA	
		C1: Load	C2: Equip-ment	H1: Fill	H2: Equip-ment
13	-	-	-	-	-
14	+	+	+	+	-
15	+	+	+	-	+
16	+	+	-	+	+
17	+	-	+	+	+
18	-	+	+	+	+
19	+	+	-	-	-
20	+	-	+	-	-
21	+	-	-	-	+
22	+	-	-	+	-
23	-	+	+	-	-
24	-	+	-	+	-
25	-	+	-	-	+
26	-	-	+	+	-
27	-	-	+	-	+
28	-	-	-	+	+

- Low
+ High

4-3. MOBREM RUNS. The data from all runs using a 60-hour workweek can be used in the second stage regression analysis to estimate the relationship between the five stage 2 parameters and manpower requirements, given a 60-hour workweek. These runs include all stage 2 runs and the half of the stage 1 runs which use 60 hours. The fact that parameters other than the five analyzed in stage 2 vary in the stage 1 run benefits the analysis. In an article on response surfaces, Downing, Gardner, and Hoffman[1] suggest for a deterministic model to make some runs "varying" the input variables that have not been varied in the experimental design. This would provide some measure of random error to compare to the lack of fit and give an indication to the extent that the response-surface model does not fit. Since the first stage runs used by USAMARDA, a better fitting regression equation would probably result if the second stage runs used parameter values inside the range of the extreme values. Table 4-3 summarizes the values used in the second stage runs as well as the value for the first stage and the April 1986 baseline values. Setting the parameters in this manner results in data for building the regression equations with four values for the parameters instead of only two. Note that the maximum for the TDA Fill Level is 1.00 since MOBREM will not allow this parameter to exceed 1.00. The total manpower requirements (excluding the AMC depot unique codes) for the second stage runs are given in Appendix H.

Table 4-3. Parameter Values Summary

Parameters	Stage 1		Stage 2		Baseline
	Low	High	Low	High	
A: D-day to M-day (P01)	0	30	10	20	10
C1: Training Load Adjustment (E02)	0.80	1.20	0.90	1.10	1.00
C2: Training Equipment (E08)	0.80	1.20	0.90	1.10	1.00
H1: TDA Fill Level (P09)	0.80	1.00	0.85	0.95	1.00
H2: Base Ops Equipment Fill (P14)	0.08	1.20	0.90	1.10	1.00

[1]Downing, D.J., et al., An examination of Response - Surface Methodologies for Uncertainty Analysis in Models, Technometrics, Vol 27, pp 151-163, May 1985

4-4. PARAMETER EFFECTS. The high and low mean levels and the parameter effects are listed in Appendix H. The Training Equipment Onhand on M-day and the Base Operations Equipment Fill Level by category parameters have no effect on the support manpower requirements computed by MOBREM for the nondepot-unique AFD codes. This observation is explained by the nature of the manpower requirement equations (MREs) which convert MOBREM workloads to manpower requirements. The MOBREM workloads used in the MREs to compute the nondepot-unique manpower requirements are listed in Appendix I. No equipment workloads are used in these equations. As a result manpower requirements are not sensitive to changes in equipment levels.

a. D-day to M-day. Figure 4-1 shows the high and low mean levels for the D-day to M-day package. The graph shows that changing the D-day to M-day relationship from 10 to 20 days affects manpower requirements mainly between M+30 and M+120 with the largest effects at M+50 and M+60. At M+50 and M+60 more manpower is required if D-day is 10 days after M-day than if it is 20 days after.

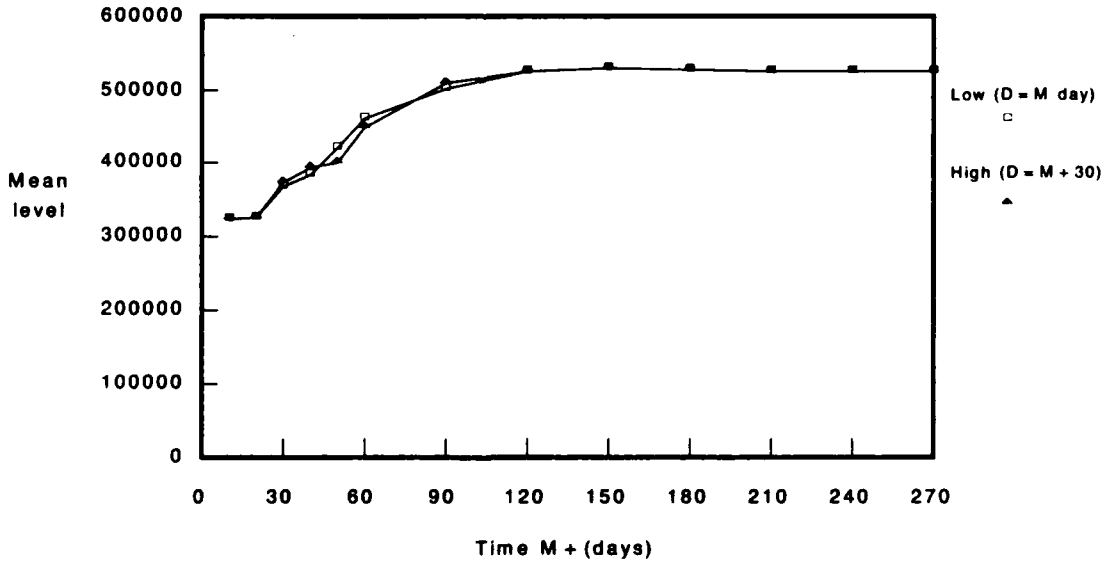

Figure 4-1. Second Stage D-day to M-day Level Means

b. Training Load Adjustment Factor. The effect of the training load adjustment factor increases until M+150. The effect of running the adjustment factor at 110 percent compared to 90 percent stabilizes at approximately 40,000 people as shown in Figure 4-2.

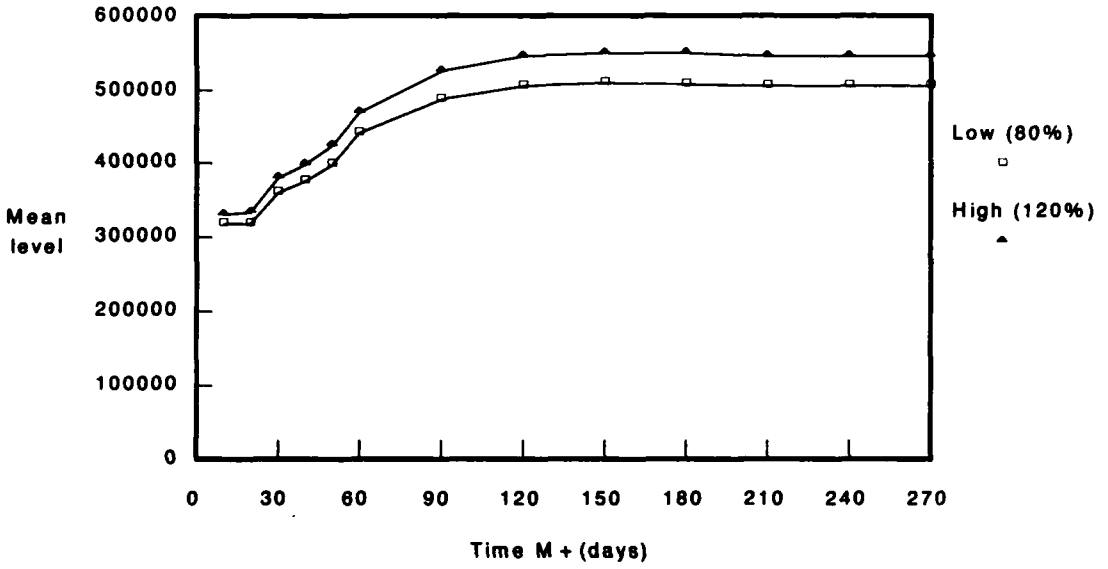

Figure 4-2. Training Load Adjustment Level Means

c. TDA Fill Level. The effect of the TDA fill level being 95 percent compared to 85 percent also increases until M+150. The difference in manpower requirements stabilizes at about 11,000 people. See Figure 4-3.

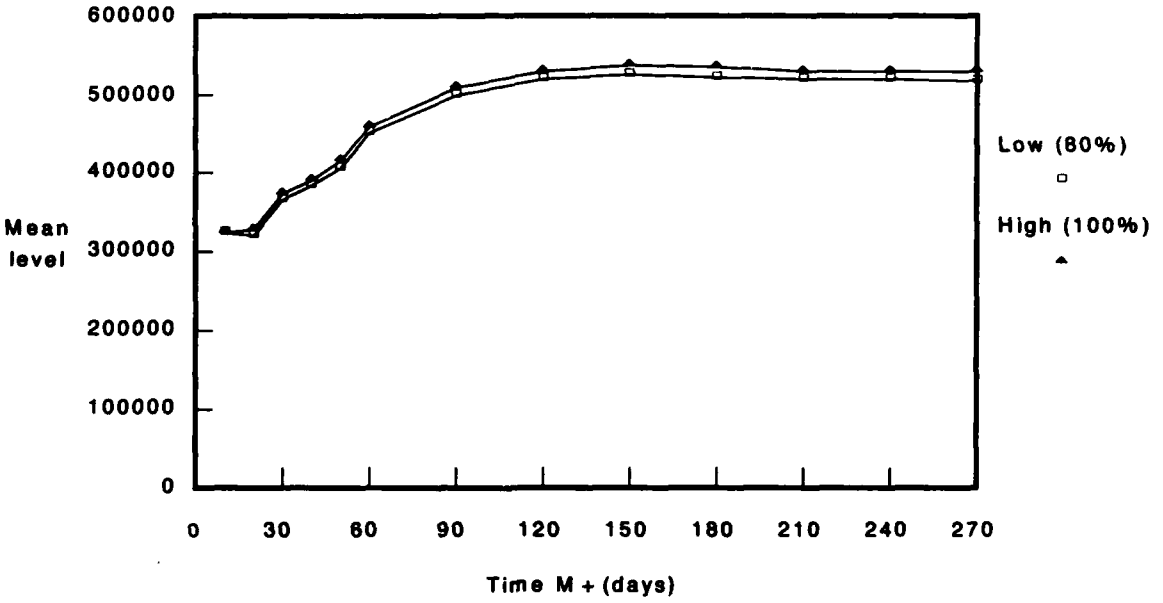

Figure 4-3. TDA Fill Level Means

4-5. PARAMETER RANKING. Table 4-4 shows the maximum absolute difference between the high and low level mean values over time for the three stage 2 parameters which have an effect. The training load adjustment factor has the largest effect, followed by the D-day to M-day parameter. TDA fill level has the smallest effect of the three.

Table 4-4. Ranking of Parameters

Parameter	Max (diff)	Ranking
A: D-day to M-day (P01)	18,037	2
C1: Training Load (E02)	40,537	1
H1: TDA Fill Level (P09)	11,357	3

4-6. PERCENT VARIATION. The data from the second stage runs was analyzed to determine the percentage of the variation accounted for by each parameter using the same technique as used with the first stage data. Figure 4-4 shows the percentage variation associated with each parameter. No variation was explained by the training equipment onhand on M-day parameter or the base operations equipment fill parameter. Due to rounding error, the percentages do not add to 100 percent for all time periods. Training explains by far the largest amount of variation, explaining over 90 percent for all time periods except M+50 and M+60. The D-day to M-day relationship explains 42 percent of the variation at M+50, 13 percent at M+60, and 5 percent at M+40. For all other time periods, D-day to M-day explains no more than 2 percent. The TDA fill parameter explains no variation at M+10, 5 to 6 percent for M+20 through M+40, and 2 or 3 percent for all other time periods.

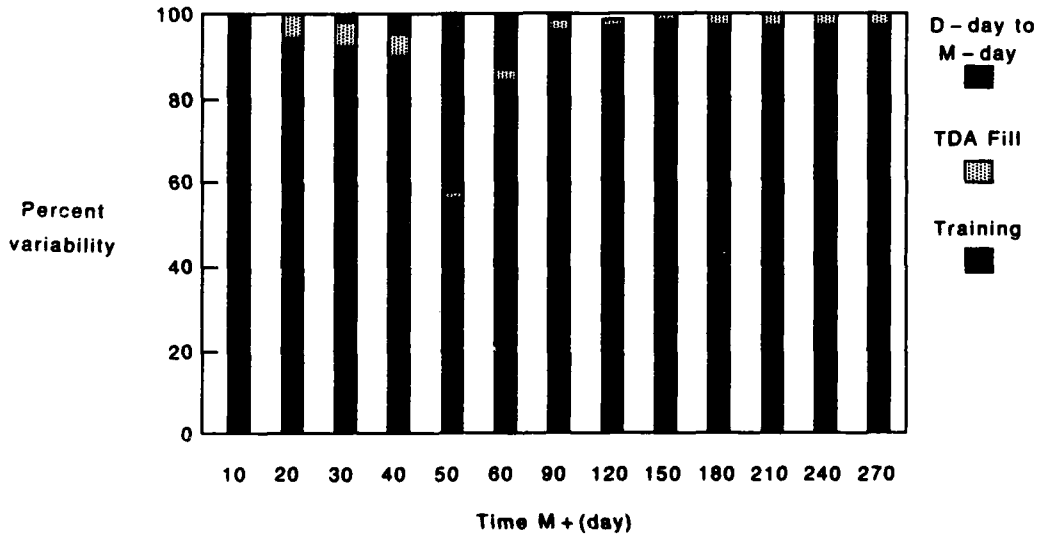

Figure 4-4. Relative Importance of Parameters

4-7. AFD CODE SENSITIVITY. The individual AFD codes are analyzed using second-stage data as they were in the first stage. Appendix J lists for the nondepot-unique AFD codes the second-stage parameter which explains the most variation for each time period. For many AFD codes, the D-day to M-day parameter explains more variation than the other second-stage parameters between M+30 and M+60. For most of these AFD codes, the training load adjustment factor is the most important parameter in explaining variation for most of the other time periods. Generally, if the TDA fill level is the most important parameter for any of the time period, it tends to be the most important parameter for all the time periods in which the manpower requirements vary. The training equipment onhand on M-day and the base operations equipment fill parameters are never the most important as they do not explain any of the variation.

4-8. REGRESSION ANALYSIS. The data from the second-stage runs and the six stage runs which used a 60-hour workweek were used in calculating regression equations for total manpower requirements for the nondepot unique AFD codes for each time period. Regression equations were developed with and without interaction terms. D-day to M-day (parameter A), the training load adjustment factor (C1), and the TDA fill level (H1) are the variables used in the regressions. The training equipment onhand on M-day and the base operations equipment fill parameters are not included in the regression analysis because they explain no variation. The regression equations relate the total manpower requirements to A, C1, and H1 and indicate how well the regression equations fit the data. A complete explanation of regression analysis can be found in Draper and Smith, Applied Regression Analysis, Wiley, New York, 1981.

a. No Interaction. The results of fitting the data with regression equations with just A, C1, and H1 and no interaction terms are summarized in Table 4-5. The fitted regression equation for each time period is of the form

MPR = constant + (Coef A) *A + (Coef C1) *C1 + (Coef H1) *H1

where MPR is the manpower requirements. Each parameter is multiplied by its coefficient and added to the constant. For example, the equation for M+10 is

MPR = 283,330.04 - 4.34A + 53,861.95C1 - 2,758.91 H1.

R^2 is percentage of the variation in the data explained by the model. R^2 can range from zero to one with large values being desirable. "Sign of F" is the statistical significance level for the F Test which tests the overall goodness of fit of the model. The smaller the significance level, the better the fit of the model. The significance level for the coefficients of parameters are also indicated in the table. Significance at 0.01 means the F statistic is significant at a level of less than or equal to 0.01. Significance of 0.05 indicates that the significance level is less than or equal to 0.05 but greater than 0.01. Similarly, significance at 0.10 indicates that the significance level is less than or equal to 0.10 but greater than 0.05. A stepwise regression procedure was used to fit the regression

equation. The variables enter the regression in order of their importance in explaining variability. For all time periods, the order in which the variables entered the model is H1, C1, then A. For M+10 and M+20, the regression equations do not fit the data well. For M+30 to M+50, the regressions fit extremely well. Except for the coefficient for H1 at M+10, the coefficients for C1 and H1 are positive. This indicates that to minimize manpower requirements C1 and H1 should both be minimal. Lower bounds of 0.80 were provided by USAMARDA for both of these parameters. The sign of the coefficient for A depends on the time period, therefore, no one value of A will minimize manpower requirements for all time periods. The D-day to M-day parameter differs from the training load and the TDA fill level parameters also in that the D-day to M-day relationship is not directly controlled by Army decisionmakers and cannot be set by the decisionmakers at an optimal value. Even though it is not of interest to determine an optimal value, the effect of varying the number of days from 0 to 30 is of interest and will be analyzed in a later paragraph.

Table 4-5. Regression Equations Without Interactions

Time	Constant	Coefficients for A: D-day to M-day	Coefficients for C1: Training load	Coefficients for H1: TDA fill level	R^2	Sign of F
M + 10	283,330 04	-4 34	53,861 95*	-2,758 91	15	3753
M + 20	214,129 31	93 08	68,210.35*	59,326 80	19	2703
M + 30	216,195 08	489 84	89,171 78**	75,888 95	34	0543
M + 40	216,599 44	82 45	110,952.15***	79,801 95	33	0577
M + 50	230,914 40	-927 60	119,398.61***	97,884 04	43	0165
M + 60	248,097 23	-975 37***	140,507 27***	96,402.97**	81	0000
M + 90	246,024 42	237 19	176,357 59***	98,992.32	67	0001
M + 120	243,324 62	94 28	195,974.60***	105,708 31	64	.0003
M + 150	248,525 77	-40 76	199,920.13***	107,124 74	57	0013
M + 180	246,071 88	-43 18	198,131 11***	106,612 79	64	.0003
M + 210	245,785 26	-44 46	194,779.01***	105,149.48	66	.0002
M + 240	245,636 46	-44 86	194,866 13***	104,920 23	67	.0001
M + 270	245,198 84	-44 69	194,771 87***	104,682 51	68	0001

*Significant at 0.10
**Significant at 0.05
***Significant at 0.01

b. Interactions. A better fit to the data is achieved if interaction terms are used in the regression equations. Table 4-6 summarizes the results of the stepwise regression procedure using the variables A, C1, H1, AC1, AH1, and C1H1 where the concatenation of the symbols indicates the interaction of the two parameters. The regression equation fit by the stepwise procedure for each time period is of the form

MPR = constant + (Coef H1) *H1 + (Coef AC1) *AC1 + (Coef AH1) * AH1 + (Coef C1H1) *C1H1

where MPR is the manpower requirements. For example, the equation for M+10 is

MPR = 350,564.86 - 125,003.72 H1 - 3,711 AC1 + 3,915.45 AH1 + 108,934.90 C1H1

The A and C1 variables are not included in any of the regression equations. With the other variables in the model, A and C1 do not account for enough variability in the data to make it worthwhile to have them as variables in the regression model. For each time period the order in which the variables enter the model is C1H1, AH1, H, then AC1. The equations do not fit the data well for M+10 and M+20. They fit reasonably well for M+30 and M+40, and after M+40 the regression equations fit extremely well. These equations will be used later as estimators of manpower requirements.

Table 4-6. Regression Equations With Interactions

Time	Constant	Coefficients for H1: TDA Fill level	Coefficients for AC1: Interaction of A and C1	Coefficients for AH1: Interaction of A and H1	Coefficients for C1H1: Interaction of C1 and H1	R^2	Sign of F
M + 10	350,565 86	-125,003 72	-3,711 04	3,915.45	108,934 90**	26	2525
M + 20	298,501 22	-86,064 21	-4,087 48	4,412.09	129,282.38**	29	.1924
M + 30	325,770 45	-89,491 92	-3,643 99	4,355 07*	144,809.89***	41	0481
M + 40	343,378 50	-110,503 46	-4,111 29	4,386 62	175,259 82***	38	0697
M + 50	353,177 21	-107,646 16	-5,144 95*	4,377 48	205,166.84***	49	0166
M + 60	381,054 94	-86,939 69*	-2,660 99*	1,648 49	194,434.09***	82	0000
M - 90	437,457 58	-155,516 13*	-3,640.53	3,993.65	241,260.85***	69	.0003
M + 120	455,345 48	-184,821 02*	-4,600.55*	4,845 24*	276,699 51***	67	0005
M + 150	465,330 11	-199,505 88*	-5,386.45*	5,533.89	292,076.31***	.61	0019
M + 180	458,336 16	-185,659.58*	-4,678 02*	4,774.64	280,622.48***	68	0005
M + 210	453,752 53	-179,096 20**	-4,424 98*	4,505.45	273,548 10***	69	0003
M + 240	453,444 53	-178,334 85**	-4,363 78*	4,439.33	272,823 32***	70	0003
M + 270	452,423 93	-176,242 19**	-4,236 37*	4,303 25	271,011 94***	71	0002

*Significant at 0.10
**Significant at 0.05
***Significant at 0.01

A: D-day to M-day
C1: Training load adjustment factor

4-9. MANPOWER REQUIREMENTS ANALYSIS

a. Reduced Requirements. Manpower requirements are very sensitive to the values of the training load adjustment factor and the TDA fill level. To estimate the possible reduction in manpower requirements due to reducing the training level and TDA fill level, MOBREM was rerun setting these parameters at these minimum values, 0.80; all other parameters were set at the 1986 baseline values. Table 4-7 compares the manpower requirements from this run to the baseline values from the April 1986 run. The reduction in the manpower requirements is the reduced requirements subtracted from the baseline; the percent reduction is the reduction divided by the baseline requirements. The percent reduction is 3 percent at M+10; it increases until M+120 at which time it stabilizes at 12 percent.

Table 4-7. Manpower Requirements Comparison

Time	Manpower baseline	Requirements reduced	Reduction	Percent reduction
M + 10	324,238	313,061	11,177	3
M + 20	331,110	304,585	26,525	8
M + 30	375,800	341,936	33,864	9
M + 40	392,119	352,593	39,526	10
M + 50	428,895	387,494	41,401	10
M + 60	469,947	423,827	46,120	10
M + 90	513,187	456,576	56,611	11
M + 120	534,662	472,623	62,039	12
M + 150	541,751	478,364	63,387	12
M + 180	539,040	476,083	62,957	12
M + 210	534,619	472,582	62,037	12
M + 240	534,494	472,532	61,962	12
M + 270	534,121	472,204	61,917	12

b. Regression Estimation. The regression equations presented in paragraph 4-8 can be used to estimate the manpower requirements at the various time periods. Table 4-8 compares the baseline requirements computed by MOBREM with estimates of the requirements computed using the regression equations with interaction terms. The difference is the regression estimates subtracted from the MOBREM computed values. The percent difference is the difference divided by MOBREM computed value.

The percent difference never exceeds -5; for most of the time periods, the difference is -3. A similar analysis can be done for the reduced manpower requirements as computed in Table 4-9. Again the percentage differences do not exceed -5, and for most time periods the difference is -3.

Table 4-8. Baseline Manpower Requirements

Time	Baseline requirements		Difference	Percent change
	MOBREM	Regression		
M + 10	324,238	336,541	-12,303	-4
M + 20	331,110	344,965	-13,855	-4
M + 30	375,800	388,199	-12,399	-3
M + 40	392,119	410,888	-18,769	-5
M + 50	428,895	443,023	-14,128	-3
M + 60	469,947	478,424	-8,477	-2
M + 90	513,187	526,733	-13,547	-3
M + 120	534,662	549,671	-15,009	-3
M + 150	541,751	559,375	-17,624	-3
M + 180	539,040	554,265	-15,225	-3
M + 210	534,619	549,009	-14,390	-3
M + 240	534,494	548,689	-14,195	-3
M + 270	534,121	547,862	-13,741	-3

Table 4-9. Reduced Manpower Requirements

Time	Reduced requirements		Difference	Percent change
	MOBREM	Regression		
M + 10	313,061	321,917	-8,856	-3
M + 20	304,585	314,987	-10,402	-3
M + 30	341,936	352,544	-10,608	-3
M + 40	352,593	369,345	-16,752	-5
M + 50	387,494	392,227	-4,733	-1
M + 60	423,827	427,841	-4,014	-1
M + 90	456,576	470,277	-13,700	-3
M + 120	472,623	486,534	-13,911	-3
M + 150	478,364	493,834	-15,470	-3
M + 180	476,083	490,180	-14,097	-3
M + 210	472,582	486,190	-13,608	-3
M + 240	472,532	485,988	-13,456	-3
M + 270	472,204	485,413	-13,209	-3

4-10. D-DAY TO M-DAY EFFECTS. The effects of the D-day to M-day relationship can be analyzed easily using the regression equations to calculate the manpower requirements using D-day to M-day relationships of 0, 10, 20, and 30 days with all other parameters being set at the baseline. The manpower requirements are listed in Table 4-10. Figure 4-5 graphically illustrates the D-day to M-day effect. The D-day to M-day relationship has little effect at M+10 and M+20. For M+30 and M+40 manpower requirements increases as the difference between D-day and M-day increases. For M+90 and later, the manpower requirements are only slightly affected and manpower requirements are larger for the larger differences between D-day and M-day.

Table 4-10. D-day to M-day Effects

Time	Manpower requirements			
	0 Days	10 Days	20 Days	30 Days
M + 10	334,497	336,541	338,585	340,629
M + 20	341,719	344,965	348,212	351,458
M + 30	381,088	388,199	395,310	402,421
M + 40	408,135	410,888	413,641	416,395
M + 50	450,698	443,023	435,348	427,674
M + 60	488,549	478,424	468,299	458,174
M + 90	523,202	526,734	530,265	533,796
M + 120	547,224	549,671	552,118	554,565
M + 150	557,901	559,375	560,849	562,324
M + 180	553,299	554,265	555,231	556,198
M + 210	548,204	549,009	549,814	550,619
M + 240	547,933	548,689	549,444	550,200
M + 270	547,194	547,862	548,531	549,200

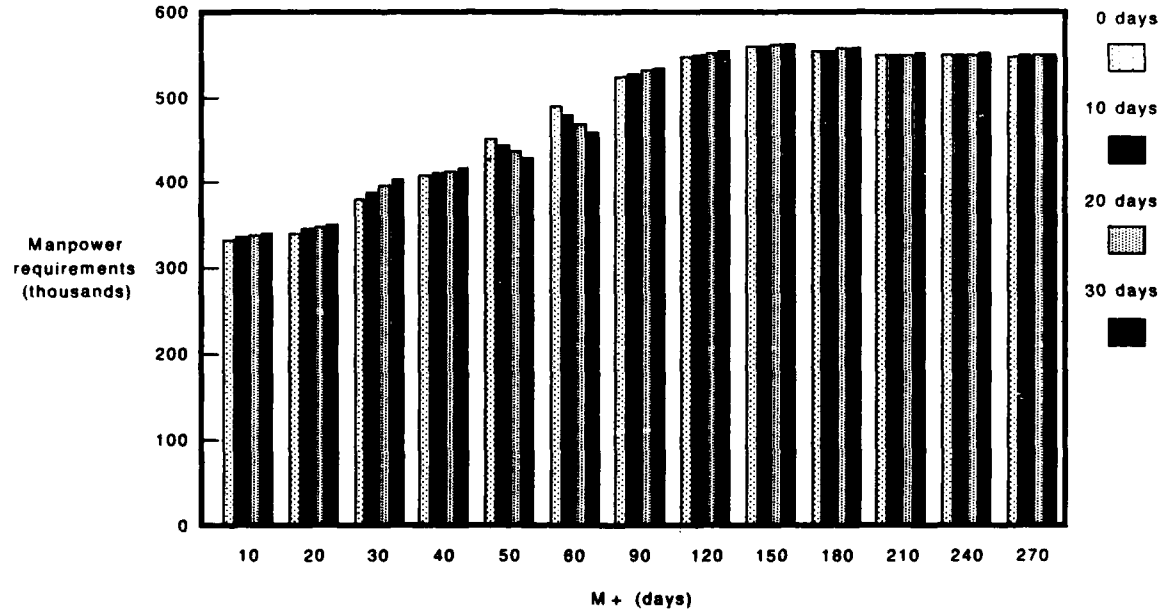

Figure 4-5. D-day to M-day Effect on Manpower Requirements

4-11. CONCLUSIONS. Of the five parameters studied in the second stage, the D-day to M-day relationship, the training load adjustment factor, and the TDA fill level affect the manpower requirements. Of these three parameters, training load adjustment factor has the greatest effect, followed by the D-day to M-day relationship. Using these three parameters and these interactions, regression equations have been developed which relate these parameters to manpower requirements for each time period. From these equations, it is clear that manpower requirements will be reduced if the training load adjustment factor and the TDA fill level are set at 0.80. By rerunning MOBREM with these values a 12 percent reduction in manpower requirements is shown when the manpower requirements stabilize after M+90. The manpower requirements produced by MOBREM and by the regression equations were compared, and they differed by no more than 5 percent. Since these regression equations do a good job of calculating manpower requirements, they were used to compare manpower requirements when the D-day to M-day relationship varies from 0 to 30. The largest effect occurs at M+50 and M+60; for these time periods, manpower requirements decrease as the difference between D-day and M-day increases.

CHAPTER 5

FINDINGS AND OBSERVATIONS

5-1. INTRODUCTION. MOBPES is the first formal study to analyze MOBREM. This study has performed a sensitivity analysis of MOBREM with respect to the parameters selected by USAMARDA, has analyzed the MOBREM run data to determine which parameters have the greatest effect on manpower requirement as an aggregate as well as by individual AFD codes, and has developed regression equations which relate these parameters to manpower requirements by time period. The remainder of this chapter addresses the essential elements of analysis and presents other observations based on study results.

5-2. ESSENTIAL ELEMENTS OF ANALYSIS (EEA)

a. Which parameters have the greatest effect on manpower requirements? USAMARDA identified nine packages of parameters which were of greatest interest: D-day to M-day, workweek, training, show rate, hospital, deploying MTOE, nondeploying MTOE, TDA, and other personnel. Of these packages, workweek is by far the most important factor on manpower requirements with more than a 250,000-person difference between a 40- and 60-hour workweek. Holding workweek constant at a 60-hour week, the training load adjustment factor is the most important parameter, followed by the D-day to M-day relationship and TDA fill level.

b. For the most sensitive parameters what are the recommended values? The workweek length parameter has by far the most effect on manpower requirements. To minimize the CONUS support manpower requirements, a 60-hour workweek should be used. Given a 60-hour workweek, the training load adjustment factor and the TDA fill level should be set at 0.80, the minimum of the ranges provided by USAMARDA. Although no one value of the D-day to M-day relationship minimizes the manpower requirements for all time periods, this study has shown that greatest effect is at M+50 and M+60.

c. What is the impact of these recommended values on manpower requirements? Using a 60-hour workweek saves more than 250,000 in manpower requirements over using a 40-hour workweek. Given a 60-hour workweek, setting the training load adjustment factor and the TDA fill level at 0.80 reduces the manpower requirements compared to baseline values by as much as 12 percent. The reduction in manpower requirements at M+10 is 3 percent. The reduction increases to 8 percent at M+20 and continues to increase until M+120, at which time it stabilizes at 12 percent.

5-3. OBSERVATIONS

a. Although manpower requirements for CONUS support can be reduced by setting parameter values to their minimum acceptable levels as is the case for training load adjustment factor and TDA fill level, any impact of these changes on quality and/or quantity of workload accomplishment is not recognized by MOBREM. MOBREM currently is capable of generating manpower requirements for given workload inputs, but it cannot reflect level of quality of work or lack of work accomplishment when these manpower requirements are not met.

b. Anomalies in computed manpower requirements when the D-day to M-day relationship is varied require further investigation to explain. There is no clear, consistent relationship as this parameter is systematically varied from D-day equals M-day to D-day equals M-day plus 30 days. Although manpower requirements all increase regardless of parameter setting as the time after D-day increases, the rates of increase do not vary systematically as the difference between D-day and M-day is systematically increased.

c. The regression equations derived in this study as functions of principal parameters are good estimators of aggregate manpower requirements within the range of data collected. Using a microcomputer, manpower requirements can be generated by these equations in a very timely, economical fashion compared to exercising the MOBREM. For many types of aggregated analyses, the tradeoff of some accuracy for timeliness can be very beneficial. It should be noted, however, that because of smaller data samples and the possibility of greater variability in data, similar regression equations for individual AFD codes may not be as good predictors of manpower requirements. This consideration would require further analysis.

APPENDIX A

STUDY CONTRIBUTORS

1. STUDY TEAM

a. Study Director

Dr. Janet Fowler, Strategy and Plans Directorate

b. Other Contributors

Mr. Carl Bates
Dr. Aqeel Khan
Mr. Franklin Womack

2. PRODUCT REVIEW BOARD

Mr. Carl A. Steinhagen, Chairman
Mr. Walter Aldridge
MAJ Gary Stipe
Mr. Patrick Laing, Co-op Member

APPENDIX B

STUDY DIRECTIVE

DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF FOR OPERATIONS AND PLANS
WASHINGTON, DC 20310 - 04

REPLY TO ATTENTION OF
DAMO-FD

2 JAN

MEMORANDUM FOR DIRECTOR, U.S. ARMY CONCEPTS ANALYSIS AGENCY

SUBJECT: Mobilization Base Requirements Model (MOBREM) Studies and Model Transfer

1. PURPOSE OF STUDY DIRECTIVE. This directive specifies the tasks, products, schedules and organizational responsibilities for transferring MOBREM to the Navy Regional Data Automation Center (NARDAC) and conducting Mobilization Policies Studies.

2. STUDY TITLE. MOBREM Transfer and Mobilization Policy Study.

3. BACKGROUND:

a. CSM 79-15-27 dated 3 August 1979 (TAB A) established a Mobilization Base Requirements Model Study Advisory Group (SAG) and a HQDA Ad Hoc Study Group to initiate a comprehensive study to determine the size of the CONUS base resources required to support mobilization, training, deployment and sustainment of the total Army during full mobilization. CSM 81-15-18 dated 28 July 1981 (TAB B) designated ODCSOPS to task CAA to proceed with the modeling process in a phased development.

b. Five phases have been completed. The model has been tested and verified as operationally ready for use by the Army for MOBTDA development, and the initial set of reports produced for distribution. Certain tasks regarding training in the use of these reports and other ARSTAF administrative actions are required in order to implement MOBREPS in the overall management information system that will utilize the MOBREM computer programs as the nucleus of the system.

c. The training and implementation phase will be completed in December 1985. The computer programs and processing expertise must be transferred to the NARDAC for the production phase of MOBREPS, the system. The Model (MOBREM) will be retained at the Concepts Analysis Agency for the conduct of Army studies. This first study is an attempt to improve the policies and parameters through sensitivity analysis. This study will not only provide some new insights into ways that mobilization policies may be improved but should lay the foundation for expanding the use of the model for force programming support and force structure evaluation. Other phases (studies) will follow as determined by the needs identified by the SAG.

DAMO-FD
SUBJECT: Mobilization Base Requirements Model (MOBREM) Studies and Model Transfer

4. STUDY PROPONENT. Deputy Chief of Staff for Operations and Plans (DCSOPS).

5. STUDY AGENCY. U.S. Army Concepts Analysis Agency (CAA).

6. TERMS OF REFERENCE.

a. Problem. The CONUS base force structure and manpower required to support full mobilization is inadequately defined resulting in significant gaps in Army program development and mobilization planning. MOBTDA development in particular, is not supported by computer analysis, mobilization workload integration or unified manpower standards.

b. Tasks. The tasking directive has 6 major tasks.

(1) Coordinate the contractor training that will be conducted on the MOBREM processing methodology.

(2) Assist in the transfer of the MOBREM Model to include; loading of the computer programs and data files into the NARDAC computer, interpretation of all MOBREM documentation and assistance in the establishment of system processing procedures.

(3) Assist the NARDAC in the update of the MOBREPS inputs to produce the MOBREPS Data Base. Once the Data Base is constructed at the NARDAC, load the updated MOBREPS Data Base into the CAA computer to process MOBREM for studies.

(4) Assist in the analysis/validation of the MOBREPS products to insure correct functioning of the computer program processing and valid input data by the NARDAC.

(5) Conduct a study on the most critical parameters that the model uses. Initially identifying the policy/parameters that produce the largest impacts on the manpower requirements by time period and location; then studying the 10 most sensitive as determined by the SAG.

(6) Provide technical assistance to DAMO-FD in SAG presentations and ARSTAF briefings.

c. Study Products. Both the study agency and the study sponsor are required to produce products during the study. These products are identified in the milestone schedule.

d. Essential Elements of Analysis.

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SUBJECT: Mobilization Base Requirements Model (MOBREM) Studies and Model Transfer

(1) Which are the twenty policies/parameters that are the largest generators of manpower requirements? (exclude AMC parameters in paragraph d(2) below)

(2) What are the impacts of changing AMC policies to all MACOM manpower requirements i.e., P16, P17, P18, etc?

(3) Of the 10 most sensitive/or selected by HQDA, which are the recommended values for each of the 10? (This will require analysis by a group and the iteration of the model at least 3 times for each policy.)

(4) Prove the impact of these new values by again processing the model and analyzing the outputs.

7. TIME FRAME. Dec 1985 - Dec 1986.

8. ASSUMPTIONS. Mobilization assumptions will be based on the latest Defense Guidance and the Army Force Planning Data Assumptions (AFPDA). Specific assumptions and exceptions will be provided by DAMO-OD.

9. RESPONSIBILITIES.

a. ODCSOPS Force Programs Directorate (DAMO-FDZ) will be responsible for:

(1) Providing one half time representative to work jointly with CAA on the tasks specified in paragraph 6b.

(2) Coordinating study interfaces and tasking required for the MOBREM SAG, ARSTAF, MACOMs and the NARDAC. This included keeping participants updated on MOBTDA guidance implementation issues; arranging for meetings and preparing minutes; and coordinating all report distribution and responses.

(3) Once the study is completed, develop/select appropriate policies to use for the next productions cycle at the NARDAC.

(4) Serving as the functional proponent for model use, model maintenance, and the updating of system files, manpower standards and acquisition of all input data.

b. ODCSOPS Mobilization Division (DAMO-ODM) will be responsible for providing the mobilization policy and planning assumptions (MPPA) used in the model.

DAMO-FD
SUBJECT: Mobilization Base Requirements Model (MOBREM) Studies and Model Transfer

c. ODCSPER Force Management Division (DAPE-MPM-TR) will be responsible for providing updated mobilization data from Army Training Resource Requirements System (ATRRS).

d. ODCSPER Joint Actions Mobilization and Operations Division (DAPE-PSJ) will be responsible for providing updated mobilization data concerning IRR and retiree pre-assignment, military prisoner population and percentages of transients and holdees.

e. ODCSPER Manpower Policy, Standards and Survey Division (DAPE-MBU) will be responsible for reviewing and approving the CONUS base mobilization manpower standards and providing these standards.

f. ODCSLOG will be responsible for identifying logistical information sources and coordinating the timely submission of input from its staff elements. Data requirements include:

(1) Prepositioned assets of Class I, II, III, IV and IX (Class VII prepositioned assets and requirements will be obtained from TAEDP).

(2) Authoritative source for the distribution of prepositioned assets against various scenarios.

g. OTSG Plans and Operations Division (DASG-HCO) will be responsible for providing health services related mobilization data required to include host tenant agreements, CONUS Base disease and non-battle injury rates, time-phased bed capabilities and other information concerning medical evacuee disposition in CONUS.

h. Other organizations. The MOBREPS SAG, ARSTAF, and MACOMs will provide support as designated in CSM 84-15-20.

10. REFERENCES. AR 5-5, The Army Study System, 15 Oct 81.

11. ADMINISTRATIVE SUPPORT.

a. TDY, per diem, and overtime related costs are the responsibilities of the agencies providing support.

b. Administrative support, office space and supplies are the responsibilities of the agencies providing support.

12. CONTROL PROCEDURES.

a. The MOBREPS System Advisory Group (SAG) established by CSM 84-15-20 will continue to function during this tasker.

b. DD Form 1498 will be prepared by CAA.

DAMO-FD
SUBJECT: Mobilization Base Requirements Model (MOBREM) Studies and Model Transfer

c. Direct contact is authorized between study agency and DA Staff/MACOM points of contact.

d. DAMO-FD-(MOFD-A) point of contact is LTC Jack Curiel, AUTOVON 227-1036.

e. This tasking memorandum has been coordinated with CAA in accordance with paragraph 4, AR 10-48.

FOR THE DEPUTY CHIEF OF STAFF FOR OPERATIONS AND PLANS:

Encls

JOHN R. GREENWAY
Brigadier General, GS
Director of Force Programs

MILESTONE SCHEDULE

RESPONSIBILITY	TASK	TIMEFRAME
CAA/FDP	Coordinate Training of NARDAC personnel	Dec85-Jan86
CAA/FDP	Transfer all required computer programs	Feb-Mar86
CAA/FDP	Assist NARDAC in construction of DB	Apr-Jun86
CAA	Process MODEL for most productive policies	Jul-Aug86
CAA	Process 3 iterations of each 10 policies	Sep-Oct86
CAA/FDP	Conduct Group Discussions	Nov86
CAA/FDP	Present to SAG	Nov 86
CAA	Produce Study Report	31Dec86

DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF FOR PERSONNEL
WASHINGTON, D.C. 20310

REPLY TO ATTENTION OF

PEMS-RO

6 AUG 1986

MEMORANDUM FOR DIRECTOR, U.S. ARMY CONCEPTS ANALYSIS AGENCY

SUBJECT: Transfer of Proponency for the Mobilization Base Requirements Model (MOBREM)

1. CSM 86-5-8 dated 17 Jul 86 transfered the responsibility for the Mobilization Base Requirements Model (MOBREM) to the Office of the Deputy Chief of Staff for Personnel (Tab A). The Manpower, Budget and Force Integration Directorate and the U.S. Army Manpower Requirements and Documentation Agency (USAMARDA) will assume the proponent roles and discharge the responsibilities as stated in the CSM.

2. USAMARDA was established as a field operating agency of ODCSPER to provide for the efficient and effective use of Total Army Manpower through the development of standards-based manpower requirements. In this capacity, USAMARDA ensures that manpower staffing standards are developed for both peacetime and mobilization, and provides mobilization requirements equations to MOBREM. The transfer of MOBREM is consistent with USAMARDA's mission to provide for the efficient and effective use of total Army manpower through the development of standards based manpower requirements.

3. The transfer of proponency occurs at a strategically opportune time. The taskings to CAA to develop, test, and validate the model have all been accomplished in an outstanding manner. The last memorandum to you concerning MOBREM (DAMO-FD, dated 2 Jan 86) concerned transfer of the model to the Navy Regional Data Automation Center (NARDAC) and the conduct of a policy/parameters sensitivity study. The transfer has been successfully accomplished and verified. Request your agency proceed with the policy study and report the results to USAMARDA. Also request you keep us informed regarding the results of your internally generated study concerning MOBREM data base management.

PEMS-RO
SUBJECT: Transfer of Proponency for the Mobilization Base Requirements Model (MOBREM)

4. A critical factor in moving a model such as MOBREM from the developmental phase to an operational mode is the potential loss of the expertise of the development personnel. In this instance, this factor is compounded by the inter-agency transfers of both proponency and model operations. In order to minimize such loss and insure that NARDAC successfully operates the model during the next MOBREM cycle (August - October 1986), request your agency continue to provide technical assistance, as requested, during the next six months.

5. Throughout the long model development effort, the cooperation between elements of ODCSPER and CAA has been most gratifying, and we look forward to the continuation of our excellent working relationship.

FOR THE DEPUTY CHIEF OF STAFF FOR PERSONNEL

Encl

CLAUDE E. FERNANDEZ, JR.
Brigadier General, GS
Director of Manpower, Budget
and Force Integration

CORRECTED COPY

CHIEF OF STAFF

Memorandum

U. S. ARMY

DISTR A EXPIRES 31 July 1987

CSM 86-5-8

DATE 17 July 1986

SUBJECT: The Army Mobilization Base Requirements Model (MOBREM)

FILE CS 370.01

ACTION OFFICER/EXT
B.J. Wroblewski
355-2597

MEMORANDUM FOR: HEADS OF ARMY STAFF AGENCIES

1. PURPOSE. This memorandum assigns responsibility for the Mobilization Base Requirements Model (MOBREM) to the Office of the Deputy Chief of Staff for Personnel (ODCSPER) effective immediately.

2. REFERENCES.

a. AR 135-300, Mobilization of Reserve Component Units and Individuals.

b. AR 570-4, Manpower Management.

c. AR 570-5, Manpower Staffing Standards System.

3. BACKGROUND.

a. Studies and mobilization exercises in the 1970s identified significant shortfalls in the Army's Continental United States (CONUS) mobilization base. There was no process to define total mobilization requirements adequately for the CONUS base.

b. A MOBREM Study Advisory Group, chaired by the Deputy Director of Force Management, Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS), was established in 1979 to conduct a comprehensive study to define the CONUS base resources required to support mobilization, training, deployment, and sustainment of the total Army during full mobilization. The ODCSOPS tasked the U.S. Army Concepts Analysis Agency to proceed with developing a model in a phased process.

c. The model, completed in 1984, has been tested and verified as operational for developing Mobilization Tables of Distribution and Allowances (MOBTDAs). Reports have been produced and training provided to Major Army Command (MACOM) representatives on the use of these reports.

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SUBJECT: The Army Mobilization Base Requirements Model (MOBREM)

d. In 1983 the U.S. Army Manpower Requirements and Documentation Agency (USAMARDA) was established as a field operating agency of ODCSPER to provide for the efficient and effective use of Total Army manpower through the development of standards-based manpower requirements. In this capacity, USAMARDA ensures that manpower staffing standards are developed for both peacetime and mobilization, and provides mobilization requirements equations to MOBREM. The transfer of MOBREM is consistent with USMARDA's mission to provide for the efficient and effective use of total Army manpower through the development of standards based manpower requirements.

4. RESPONSIBILITIES

a. Manpower, Budget and Force Integration, Directorate, ODCSPER, will--

(1) Act as the proponent for MOBREM.

(2) Ensure that the model operates and the data base is maintained.

(3) Task appropriate MACOMs to provide data necessary to operate MOBREM.

(4) Conduct training for MOBREM users as needed.

(5) Develop and maintain manpower requirements equations for use in MOBREM.

(6) Furnish manpower requirements information to MACOMs and staff agencies to use in developing MOBTDAs.

b. Personnel, Readiness and Mobilization Office, ODCSPER, will use the Mobilization Personnel System to provide individual ready reservist, individual mobilization augmentee and retiree data to MOBREM.

c. Force Development Directorate, ODCSOPS, will-

(1) Provide predetermined CONUS base support functions.

(2) Provide each Table of Distribution and Allowances (TDA) units' Personnel and Equipment requirements and authorizations.

d. Operations, Readiness and Mobilization Directorate, ODCSOPS will provide-

SUBJECT: The Army Mobilization Base Requirements Model (MOBREM)

(1) Modification Table of Organization and Equipment unit military personnel on hand strengths and mobilization requirements using the Unit Status and Identity Reporting System, Force Mobilization Troop Basis, and Mobilization Troop Basis Stationing Plans.

(2) Mobilization policy planning assumptions using the Army Mobilization and Operations Planning System.

e. Institutional Training Division, ODCSOPS, will provide mobilization trainees and students. Source: Army Training Requirements and Resources System.

f. Office of the Deputy Chief of Staff for Logistics will -

(1) Develop and maintain Equipment Requirements Equations for use in MOBREM.

(2) Develop Equipment Requirement Equations (ERE) and equipment requirement reports.

(3) Provide theater shipping requirements using The Army Equipment Distribution Program (TAEDP).

g. Office of the Surgeon General, will provide-

(1) Health services related mobilization data.

(2) CONUS base disease/non-battle injury (DNBI) rates.

(3) Time-phased bed capabilities.

(4) Other information concerning medical evacuee disposition in CONUS.

h. Army staff agencies will furnish name and telephone number of MOBREM POC to USAMARDA (Ms. B.J. Wroblewski/355-2597/98) by 18 Jul 86.

5. ADMINISTRATIVE SUPPORT. Funds for travel, per diem, and overtime, if required, will be provided by the parent organization of the participating representative.

BY DIRECTION OF THE CHIEF OF STAFF:

ARTHUR E. BROWN, JR.
Lieutenant General, GS
Director of the Army Staff

APPENDIX C

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APPENDIX D

MOBREM MACOM AND INSTALLATION CODES

This appendix lists the codes for all installations considered in the MOBREM Model. The manpower requirements identified from this study were aggregated by the USAMARDA Steering Committee across all installations listed below.

AS - Intelligence and Security Command (INSCOM)

ARL	Arlington Hall Station
VHL	Vint Hills Farm

CC - Communications Command (ACC)

HUA	Fort Huachuca
RCH	Fort Richie

DF - Defense

DED	Defense Depots
OTH	Other Service Installations

FC - Forces Command (FORSCOM)

ATR	Camp Atterbury
BCH	Fort Buchannan
BLN	Camp Blanding
BRG	Fort Bragg
CMB	Fort Campbell
CRS	Fort Carson
DGE	Camp Dodge
DRM	Fort Drum
DVN	Fort Devens
EDW	Camp Edwards
FCD	Units Not Stationed
GRE	Fort Greely
GRY	Camp Grayling
GWN	Gowen Field
HOD	Fort Hood
IGP	Fort Indiantown Gap
IRW	Fort Irwin
LWS	Fort Lewis
MCP	Fort McPherson
MCY	Fort McCoy
MED	Fort Meade

ORD Fort Ord
PLK Fort Polk
PMT Presidio of Monterey
PSF Presidio of San Francisco
RIC Fort Richardson
RLY Fort Riley
ROB Camp Roberts
RPL Camp Ripley
SCH Schofield Barracks
SHA Fort Shaffer
SHL Camp Shelby
SHN Fort Sam Houston
SHR Fort Sheridan
SMT Fort Smith
STG Camp Santiago
STW Fort Stewart
WRT Fort Wainwright

HS - Health Services Command (HSC)

DTS Fort Detrick
FTZ Fitzsimons Army Med Ctr
TRP Tripler AMC
WRD Walter Reed AMC

MA - US Military Academy (USMA)

WPT US Military Academy

MT - Military Traffic Management Command (MTMC)

MTM MTMC Minus

MW - Military District of Washington (MDW)

MDW Military District of Washington

PI - Dummy Command

NOA None of the above

TC - Training and Doctrine Command (TRADOC)

BLS Fort Bliss
BLV Fort Belvoir
BNG Fort Benning
CHF Fort Chaffee
CRL Carlisle Barracks

DIX	Fort Dix
EST	Fort Eustis
GRD	Fort Gordon
HLL	Fort AP Hill
HRS	Fort Benjamin Harrison
JCK	Fort Jackson
KNX	Fort Knox
LEE	Fort Lee
LVN	Fort Leavenworth
LWD	Fort Leonard Wood
MCL	Fort McClellan
MNR	Fort Monroe
PCK	Fort Pickett
RCK	Fort Rucker
SLL	Fort Sill

X - Army Materiel Command (AMC)

ALA	Alabama Army Ammo Plant
ANS	Anniston Army Depot
APG	Aberdeen Proving Ground
BDG	Badger Army Ammo Plant
CCH	Corpus Christi Army Depot
CHR	USA Charleston Storage Activity
CLA	Fort Clayton
COR	Cornhusker Army Ammo Plant
CRA	Crane Army Ammo Activity
DGW	Dugwag Proving Ground
DSI	Darcom Shortfall Installation
EDG	Edgewood Arsenal
FRF	Frankford Arsenal Caretaker Activity
HLS	Holston Army Ammo Plant
HWT	Hawthorne Army Ammo Plant
IND	Indiana Army Ammo Plant
IOW	Iowa Army Ammo Plant
JFR	Jefferson Proving Grounds
JLT	Joliet Army Ammo Plant
KNS	Kansas Army Ammo Plant
LGH	Longhorn Army Ammo Plant
LKC	Lake City Army Ammo Plant
LNS	Lonestar Army Ammo Plant
LOU	Louisiana Army Ammo Plant
LTK	Letterkenny Army Depot
LXB	Lexington-Bluegrass Army Depot Activity
MCA	McAllester Army Ammo Plant
MLN	Milan Army Ammo Plant
MNM	Fort Monmouth
MSS	Mississippi Army Ammo Plant
NAS	Non-Army Storage Activities
NAV	Navajo Army Depot Activity
NCM	New Cumberland Army Depot
NPT	Newport Army Ammo Plant
PBL	Pine Bluff Arsenal

PCT	Picatinny Arsenal
PUE	Pueblo Army Depot Activity
ROF	Radford Army Ammo Plant
RDS	Redstone Arsenal
RIS	Rock Island Arsenal
RRV	Red River Army Depot
RVB	Riverbank Army Ammo Plant
RVN	Ravenna Army Ammo Plant
RYM	USA Rocky Mountain Arsenal
SAC	Sacramento Army Depot
SCR	Scranton Army Ammo Plant
SFL	Sunflower Army Ammo Plant
SIR	Sierra Army Depot
SNC	Seneca Army Depot
SRP	Sharpe Army Depot
STL	St. Louis Army Ammo Plant
SVN	Savannah Army Depot Activity
TBY	Tobyhanna Army Depot
TOL	Tooele Army Depot
TWC	Twin Cities Army Ammo Plant
UMT	Umatilla Army Depot Activity
VLT	Volunteer Army Ammo Plant
WNG	Fort Wingate Army Depot Activity
WSM	White Sands Missile Range
WTV	Watervliet Arsenal
YUM	Yuma Proving Grounds

APPENDIX E

MOBREM AFD CODES

This appendix lists all manpower AFD codes used in the MOBREM model. It subdivides the codes into AMC depot-unique codes and non-AMC depot-unique codes. Only the latter category codes were used in this study analysis.

Non-AMC Depot-unique Codes

MOBREM code	AFD code	Function
*901C	AC	Administrative Support Management
*901E	AE	Publications Management
*901F	AF	Postal Services
*901Y	AY	Administration (Limited Staff)
*9010	A#	All Other Administration
*902A	CA&CB	Command & Protocol
*902C	CC	Public Affairs
*902D	CD	Equal Employment Opportunity
*902E	CE	Organizational Effectiveness
*902F	CF	Inspection
*902G	CG	Legal Services
*902H	CH	Chaplaincy Activities
*902J	CJ	Small Business
*902K	CK	History
*902N	CN	Internal Review
*902P	CP	Safety
*902Y	CY	Command and Command Support (Limited Staff)
401	DA	Information Management
415	DBE	Audiovisual Activities
410X	DB#	Other Information Management Operations
416H	DBFH	Telephone Activity Management
416X	DBF#	Other Information System Site Operations
449	DY	Information Systems Management (Limited Staff)
801	E	Engineering
*903B	FA&FB	Fiscal Management and Finance and Accounting
*903C	FC	Budget

MOBREM code	AFD code	Function
*903D	FD	Resource Management
*903Y	FY	Fiscal and Resource Management (Limited Staff)
301A	HAA	Inpatient Medical Care
301B	HAB	Inpatient Surgical Care
301C	HAC	Obstetrical and Gynecological Care
301D	HAD	Pediatric Care
301E	HAE	Orthopedic Care
301F	HAFY	Psychiatric Care
302	HB	Ambulatory Care
303	HC	Dental Care
304	HD	Ancillary Services
305	HE	Medical Support Services
306	HF	Special Programs
307	HG	Health Service/Staff
308	HH	Preventive Medicine Management
349	HY	Health Services (Limited Staff)
451	J	Intelligence
*904A	KA	Installation Facilities Engineering Management
*904C	KC	Facilities Engineer Resources Management
*904D	KD	Facilities Engineering Services
*904E	KE	Army Housing
*904F	KF	Environmental Management
*904W	KGB,A,Z	Utilities, Buildings, Grounds and Structures
*904V	KGC	Utility Operations
*904H	KH	Fire Prevention/Protection
*904Y	KY	Installation Facilities Engineering (Limited Staff)
*911A	LA	Logistics Management

MOBREM code	AFD code	Function
*912B	LBB	Food Services
*912C	LBC	Commissary Operations Activities
311	LBH	Medical Housekeeping and Janitorial Service
312	LBJ	Medical Linen and Laundry Service
*912X	LB#	Other Troop Services
851	LCE	Military Air Traffic Coordination
*913F	LCF	Personal Property
*913G	LCG	Personnel Movements
*913J	LCJ	Motor Transportation Services
*913Y	LCY	Transportation (Limited Staff)
*913X	LC#	Other Transportation
*914A	LDA	Maintenance/Staff
*914E	LDE	Maintenance Quality Control
*914Q	LDFA	Maintenance Operations Management
*914R	LDFB	Work Control
*914S	LDFJ	Aircraft Maintenance
*914T	LDFK	Automative Maintenance
*914U	LDFN	Communications-Electronic Equipment Maintenance
*914V	LDFU	Commodity Groups Maintenance
*914W	LDFX	Weapons Maintenance
313	LDFY	Biomedical Equipment Maintenance
*914Y	LDY	Maintenance (Limited Staff)
*914X	LD#	Other Maintenance
*916A	LEA	Supply/Staff
*916B	LEB	Supply Activities Management

MOBREM code	AFD code	Function
*916H	LEH	Inventory Control
*916K	LEK	Supply Control
*916L	LEL	Ammunition Services
*916M	LEM	Inventory Management
*916N	LEN	Supply Issue
*916T	LET	Bulk Fuel and Lubricating Activities
*916U	LEU	Supply Quality Control
314	LEY	Medical Materiel Services
*916X	LE#	Other Supply
*917A	LF	Equipment Management
*919A	LY	Logistics (Limited Staff)
*905A	M	Manpower
351	PBR	Recruiting
361	PBS	Military Entrance Processing
*906W	PBFFD	Personnel Control Facility Activities
*906V	PBQ	Military Personnel Office Management
*906U	PB#	Other Military Personnel
*906C	PC	Morale, Welfare and Recreation
*906D	PD	Civilian Personnel
*906E	PE	Human Resources Development
*906X	P#	Other Personnel
*907A	QAA	Acquisition Management/Staff
*907B	QAB	Acquisition Management Operations
*907X	Q#	Other Acquisition
551	R	Research and Development
501	SA	Criminal Investigations Management

MOBREM code	AFD code	Function
*908B	SBB	Provost Marshal Activities
*908C	SBC	Confinement of Military Offenders
*908Y	SY	Security (Limited Staff)
*908X	S#	Other Security
*102	TB	Instruction
*104B	TDE	School Support
*104A	TD#	Other Training Management
*105	TE	Training Development
*107	TG	Training Support
*108	TH	Education Services
*110	TJ	Reserve Officers' Training Corps (ROTC)
*111	TK	US Military Academy Cadet Training
*148	T#	Other Training and Education
*909A	U	Materiel Acquisition
*909B	V	Civilian Trainee Programs
*909C	X	Operations, Plans and Forces
*919B	Y	Combined Activities
		AMC Depot-unique Codes
A221	LD	Anniston Maintenance
A211A	LEK	Anniston Supply Control
A211G	LEL	Anniston Ammunition Services
A211B	LEM	Anniston Inventory Management
A211C	LEN	Anniston Supply Issue
A211E	LEU	Anniston Supply Quality Control
A211F	LEZ	Anniston Supply (Other)

MOBREM code	AFD code	Function
B221	LD	Corpus Christi Maintenance
B211A	LEK	Corpus Christi Supply Control
B211B	LEM	Corpus Christi Inventory Management
B211C	LEN	Corpus Christi Supply Issue
B211E	LEU	Corpus Christi Supply Quality Control
C221	LD	Letterkenny Maintenance
C211A	LEK	Letterkenny Supply Control
C211G	LEL	Letterkenny Ammunition Services
C211B	LEM	Letterkenny Inventory Management
C211C	LEN	Letterkenny Supply Issue
C211E	LEU	Letterkenny Supply Quality Control
C211F	LEZ	Letterkenny Supply (Other)
M211A	LEK	Lexington-Bluegrass Supply Control
M211G	LEL	Lexington-Bluegrass Ammuniton Services
M211B	LEM	Lexington-Bluegrass Inventory Management
M211C	LEN	Lexington-Bluegrass Supply Issue
M211E	LEU	Lexington-Bluegrass Supply Quality Control
M211F	LEZ	Lexington-Bluegrass Supply (Other)
D221	LD	New Cumberland Maintenance
D211A	LEK	New Cumberland Supply Control
D211B	LEM	New Cumberland Inventory Management
D211C	LEN	New Cumberland Supply Issue
D211E	LEU	New Cumberland Supply Quality Control
D211F	LEZ	New Cumberland Supply (Other)
O221	LD	Pueblo Maintenance
O211A	LEK	Pueblo Supply Control

MOBREM code	AFD code	Function
0211G	LEL	Pueblo Ammunition Services
0211B	LEM	Pueblo Inventory Management
0211C	LEN	Pueblo Supply Issue
0211E	LEU	Pueblo Supply Quality Control
0211F	LEZ	Pueblo Supply (Other)
E221	LD	Red River Maintenance
E211A	LEK	Red River Supply Control
E211G	LEL	Red River Ammunition Services
E211B	LEM	Red River Inventory Management
E211C	LEN	Red River Supply Issue
E211D	LER	Red River Stock Control
E211E	LEU	Red River Supply Quality Control
E211F	LEZ	Red River Supply (Other)
F221	LD	Sacramento Maintenance
F211A	LEK	Sacramento Supply Control
F211B	LEM	Sacramento Inventory Management
F211C	LEN	Sacramento Supply Issue
F211E	LEU	Sacramento Supply Quality Control
F211F	LEZ	Sacramento Supply (Other)
I211A	LEK	Sierra Supply Control
I211G	LEL	Sierra Ammunition Services
I211B	LEM	Sierra Inventory Management
I211C	LEN	Sierra Supply Issue
G211A	LEK	Seneca Supply Control
G211G	LEL	Seneca Ammunition Services
G211B	LEM	Seneca Inventory Management

MOBREM code	AFD code	Function
G211C	LEN	Seneca Supply Issue
G211E	LEU	Seneca Supply Quality Control
G211F	LEZ	Seneca Supply (Other)
H211A	LEK	Sharpe Supply Control
H211B	LEM	Sharpe Inventory Management
H211C	LEN	Sharpe Supply Issue
H211E	LEU	Sharpe Supply Quality Control
H211F	LEZ	Sharpe Supply (Other)
P211A	LEK	Savannah Supply Control
P211G	LEL	Savannah Ammunition Services
P211B	LEM	Savannah Inventory Management
P211C	LEN	Savannah Supply Issue
P211F	LEZ	Savannah Supply (Other)
J221	LD	Tobyhanna Maintenance
J211A	LEK	Tobyhanna Supply Control
J211B	LEM	Tobyhanna Inventory Management
J211C	LEN	Tobyhanna Supply Issue
J211E	LEU	Tobyhanna Supply Quality Control
J211F	LEZ	Tobyhanna Supply (Other)
K221	LD	Tooele Maintenance
K211A	LEK	Tooele Supply Control
K211G	LEL	Tooele Ammunition Services
K211B	LEM	Tooele Inventory Management
K211C	LEN	Tooele Supply Issue

MOBREM code	AFD code	Function
K211E	LEU	Tooele Supply Quality Control
K211F	LEZ	Tooele Supply (Other)
Q211A	LEK	Umatilla Supply Control
Q211G	LEL	Umatilla Ammunition Services
Q211C	LEN	Umatilla Supply Issue
L211A	LEK	Fort Wingate Supply Control
L211G	LEL	Fort Wingate Ammunition Services
L211C	LEN	Fort Wingate Supply Issue

APPENDIX F

MOBREM PARAMETER FILES

F-1. INTRODUCTION. This appendix contains the parameter files for the parameters in USAMARDA's parameter list. These parameter files were generated by MOBREM using base case, April 1986, values. The following files are included:

P01 - D-day in relation to M-day

P05 - Deploying MTOE units - days of fill/train/POM table

P06 - Nondeploying MTOE units - days of fill table

P07 - Deploying MTOE units - personnel fill level

P08 - Nondeploying MTOE units - personnel fill level

P09 - TDA fill level

P12 - Deploying MTOE units - equipment fill level by category

P13 - Nondeploying MTOE units - equipment fill level by category

P14 - Base operations equipment fill level by category

E01 - Workweek by time period and manhour availability

E02 - Training load adjustment factor

E04 - IRR, IMA, retiree show rates

E06 - Deploying MTOE units - personnel onhand on M-day

E07 - Nondeploying MTOE units - personnel onhand on M-day

E08 - Training equipment onhand on M-day

E09 - Deploying MTOE units - equipment onhand on M-day by category

E10 - Nondeploying MTOE units - equipment onhand on M-day by category

E11 - Base operations equipment onhand on M-day by category

E22 - Productivity adjustment factor

I01 - Prisoner proportion

I02* - TDA military and civilian M-day manning levels

I03* - Transierts proportion

I05* - PCF individuals proportion

I08 - Hospital percent full and percent military patients

I09 - CONUS patient rates

*The narrative in these MOBREM files is incomplete due to the contractors running out of funds. The supplemental narrative was provided under a separate contract but has not as yet been included in MOBREM.

F-2. PARAMETER DESCRIPTIONS

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****    PO1 - D-DAY IN RELATION TO M-DAY

DEFN:   THE NUMBER OF DAYS AFTER M-DAY THAT D-DAY OCCURS.

MARK:   THIS PARAMETER ALLOWS THE USER TO OFFSET FROM THE M-DAY
        DATE THOSE ACTIVITIES AND EVENTS IN MOBILIZATION THAT
        OCCUR RELATIVE TO D-DAY.  THUS, FOR INSTANCE, THE MODEL
        WILL ALLOW FOR A MOBILIZATION OF ARMY UNITS AND WILL
        COMMENCE ALL ASSOCIATED MOBILIZATION PREPARATION
        ACTIVITY, BUT WILL NOT DEPLOY CONUS-BASE UNITS UNTIL THE
        APPROPRIATE D-DAY RELATIONSHIP CONDITION HAS BEEN
        ACHIEVED.

BASECASE ASSUMPTION:  D-DAY OCCURS ON M-DAY.

TEST-ONE VALUE:
        DDAYP= 10
----------------------------------------------------------------------
FORMAT OF ENTRY:  3 DIGITS, RIGHT-JUSTIFIED, NO DECIMAL,
                  COL 21 - 23.
----------------------------------------------------------------------
```

****
**** P05 - DEPLOYING MTOE UNITS - DAYS OF FILL/TRAIN/POM TABLE

DEFN: THE LENGTH (IN DAYS) OF THE FILL, TRAIN, AND PREPARATION FOR OVERSEAS MOVEMENT (POM) PERIODS FOR DEPLOYING MTOE UNITS, AS A FUNCTION OF THE COMPONENT AND THE TIME OF DEPLOYMENT OF THE UNIT.

NARR: THIS TABLE ALLOWS THE USER TO SPECIFY THE NUMBER OF DAYS OF FILL/TRAIN/POM FOR DEPLOYING MTOE UNITS. THE FILL, TRAIN, AND POM PERIODS OCCUR SEQUENTIALLY WHILE A UNIT IS AT ITS MOBILIZATION INSTALLATION. THE VALUES ARE SET AS A FUNCTION OF THE UNIT'S CATEGORY (COMPONENT AND DEPLOYING DATE). THE MODEL CHANGES THE SCHEDULE FOR UNITS WHICH DO NOT HAVE ENOUGH TIME BEFORE THE DEPLOYMENT DATE. WHEN THE SCHEDULE IS CHANGED, THE TRAINING TIME IS CUT FIRST, THEN THE FILL TIME, AND POM IS CUT LAST. POM WILL NOT BE CUT TO LESS THAN ONE DAY.

--WARNING--A FILL TIME OF 0 IMPLIES THAT NO FILL WILL BE ALLOWED AND OVERRIDES PARAMETER P07, PERSONNEL FILL LEVEL, AND P12, EQUIPMENT FILL LEVEL, OF DEPLOYING MTOE UNITS.

BASECASE ASSUMPTION: A BASECASE TABLE HAS BEEN DEVELOPED FOR THE FILL, TRAIN, AND POM PERIODS FOR DEPLOYING MTOE UNITS

BASECASE VALUES:

COMPO=1	X <= 30	FILL= 7	TRAIN= 0	POM= 7
	30 < X <= 60	FILL= 7	TRAIN= 0	POM= 7
	60 < X <= 90	FILL= 7	TRAIN= 0	POM= 7
	90 < X	FILL= 7	TRAIN= 0	POM= 7
COMPO=2	X <= 30	FILL= 7	TRAIN=14	POM= 7
	30 < X <= 60	FILL= 7	TRAIN=14	POM= 7
	60 < X <= 90	FILL= 7	TRAIN=14	POM= 7
	90 < X	FILL= 7	TRAIN=14	POM= 7
COMPO=3	X <= 30	FILL= 7	TRAIN=14	POM= 7
	30 < X <= 60	FILL= 7	TRAIN=14	POM= 7
	60 < X <= 90	FILL= 7	TRAIN=14	POM= 7
	90 < X	FILL= 7	TRAIN=14	POM= 7
COMPO=4	X <= 30	FILL= 7	TRAIN=14	POM= 7
	30 < X <= 60	FILL=14	TRAIN=21	POM= 7
	60 < X <= 90	FILL=21	TRAIN=42	POM= 7
	90 < X	FILL=21	TRAIN=42	POM= 7
POMCUS	X <= 5	FILL= 2	TRAIN= 0	POM= 2
	5 < X <= 12	FILL= 4	TRAIN= 0	POM= 4
	12 < X <= 20	FILL= 3	TRAIN= 2	POM= 6
	20 < X	FILL= 5	TRAIN= 5	POM= 5

FORMAT OF ENTRY: 2 DIGITS, RIGHT-JUSTIFIED, NO DECIMAL.

FILL, TRAIN, AND POM MUST ALIGN AS FOLLOWS:

FILL=NN TRAIN=NN POM=NN

****
**** PC6 - NON-DEPLOYING MTOE UNITS - DAYS OF FILL TABLE

DEFN: THE LENGTH (IN DAYS) OF THE FILL PERIOD FOR NON-DEPLOYING MTOE UNITS, AS A FUNCTION OF THE COMPONENT OF THE UNIT.

VARR: THIS TABLE ALLOWS THE USER TO SPECIFY THE NUMBER OF DAYS OF FILL FOR NON-DEPLOYING MTOE UNITS. THE FILL PERIOD BEGINS THE DAY AFTER THE UNIT ARRIVES AT THE MOBILIZATION STATION. INCREASING THE LENGTH OF THE FILL PERIOD DECREASES THE LENGTH OF TIME THE UNIT IS AVAILABLE AS AN ASSET.

--WARNING--A FILL TIME OF 0 IMPLIES NO FILL IS ALLOWED AND OVERRIDES PARAMETER P08, PERSONNEL FILL LEVEL, AND P13, EQUIPMENT FILL LEVEL, OF NON-DEPLOYING UNITS.

BASECASE ASSUMPTION: A BASECASE TABLE HAS BEEN DEVELOPED FOR THE FILL PERIOD FOR NON-DEPLOYING MTOE UNITS.

BASECASE VALUES:

COMPO=1	FILL= 1
COMPO=2	FILL=14
COMPO=3	FILL=14
COMPO=4	FILL=30

FORMAT OF ENTRY: 2 DIGITS, RIGHT-JUSTIFIED, NO DECIMAL, COL 40 - 41.

****
**** P07 - DEPLOYING MTOE UNITS - PERSONNEL FILL LEVEL

DEFN: THE PROPORTION OF PERSONNEL STRUCTURE STRENGTH TO WHICH DEPLOYING MTOE UNITS WILL BE FILLED.

NARR: THIS TABLE ALLOWS THE USER TO SET THE PERSONNEL STRENGTH FOR DEPLOYING MTOE UNITS ON THE DEPLOYMENT DATE, I.E. DEPLOYMENT PERSONNEL AUTHORIZED LEVEL (ALO) STRENGTH. VALUES OF 1.00 MEAN THE UNIT WILL DEPLOY AT THE REQUIRED STRUCTURE STRENGTH FOR ALO 1. VALUES LESS THAN 1.00 ARE USED TO INDICATE ALO 2 OR 3.

IF THIS PARAMETER IS SET TO A VALUE THAT IS LOWER THAN THE VALUE OF THE M-DAY ON-HAND LEVEL PARAMETER (E06), NO ACTION WILL BE TAKEN (I.E.PERSONNEL WILL NOT BE SUBTRACTED FROM THE ON-HAND LEVEL.)

NOTES: (1) THIS PARAMETER SHOULD BE SET IN CONJUNCTION WITH PARAMETERS P05 AND E06.

(2) IF THE LENGTH OF FILL TIME (PARAMETER P05) IS SET TO ZERO, THE LEVEL IN THIS TABLE WILL BE IGNORED AND NO FILL WILL OCCUR.

BASECASE ASSUMPTION: ALL DEPLOYING MTOE UNITS WILL BE FILLED TO THEIR PERSONNEL STRUCTURE STRENGTH LEVELS DURING THE FILL PERIOD.

BASECASE VALUES: (ALL 1.00)

COMPO=1		X <= 30	FILL LEVEL=	.85
	30 <	X <= 60	FILL LEVEL=	.85
	60 <	X <= 90	FILL LEVEL=	.85
	90 <	X	FILL LEVEL=	.85
COMPO=2		X <= 30	FILL LEVEL=	.85
	30 <	X <= 60	FILL LEVEL=	.85
	60 <	X <= 90	FILL LEVEL=	.85
	90 <	X	FILL LEVEL=	.85
COMPO=3		X <= 30	FILL LEVEL=	.85
	30 <	X <= 60	FILL LEVEL=	.85
	60 <	X <= 90	FILL LEVEL=	.85
	90 <	X	FILL LEVEL=	.85
COMPO=4		X <= 30	FILL LEVEL=	.85
	30 <	X <= 60	FILL LEVEL=	.85
	60 <	X <= 90	FILL LEVEL=	.85
	90 <	X	FILL LEVEL=	.85

FORMAT OF ENTRY: 3 DIGITS PLUS DECIMAL (X.XX), COL 53-56

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**********************************************************************
****   P08 - NON-DEPLOYING MTOE UNITS - PERSONNEL FILL LEVEL

DEFN:  THE PROPORTION OF PERSONNEL STRUCTURE STRENGTH TO WHICH
       NON-DEPLOYING MTOE UNITS ARE TO BE FILLED.

NARR:  THIS TABLE ALLOWS THE USER TO SET THE LEVEL TO WHICH
       NON-DEPLOYING MTOE UNITS WILL FILL WITH PERSONNEL BY THE
       COMPLETION OF THE UNIT FILL PERIOD.  THE FILL LEVEL IS
       BASED ON THE COMPONENT OF THE UNIT.

       NOTE:  THIS PARAMETER SHOULD BE SET IN CONJUNCTION WITH
              NON-DEPLOYING MTOE UNITS PERSONNEL ON-HAND ON
              M-DAY PARAMETER (E07) AND NON-DEPLOYING MTOE UNITS
              DAYS OF FILL (P06).

BASECASE ASSUMPTION:  IF P06 > 0, NON-DEPLOYING MTOE UNITS WILL
       BE FILLED TO THEIR PERSONNEL STRUCTURE STRENGTH LEVELS
       DURING THEIR FILL PERIOD.

BASECASE VALUES:  (ALL 1.00)
       COMPO=1              FILL=1.00
       COMPO=2              FILL=1.00
       COMPO=3              FILL=1.00
       COMPO=4              FILL=1.00
----------------------------------------------------------------------
FORMAT OF ENTRY:  3 DIGITS PLUS DECIMAL (X.XX), COL 42-45.
----------------------------------------------------------------------
```

****
**** P09 - TDA FILL LEVEL

DEFN: THE PROPORTION OF MODEL-COMPUTED TDA MANPOWER REQUIREMENTS TO WHICH INSTALLATION PERSONNEL LEVELS ARE TO BE FILLED.

NARR: THIS PARAMETER ALLOWS THE USER TO SPECIFY THE PROPORTION OF MODEL-COMPUTED TDA MANPOWER REQUIREMENTS THAT WILL BE FILLED WITH PERSONNEL DURING MOBILIZATION. FOR INSTANCE, IF THE MODEL COMPUTED THAT 1000 MANPOWER SPACES ARE REQUIRED TO ACCOMPLISH THE MOBILIZATION WORKLOAD AT A PARTICULAR INSTALLATION, AND THE TDA FILL LEVEL PARAMETER IS SET AT 1.00, THEN ALL SPACES ARE ASSUMED TO BE FILLED WITH PERSONNEL AT THE TIME OF THE REQUIREMENT. THUS, THE INSTALLATION TDA-ASSIGNED PERSONNEL LEVELS WILL EQUAL 1000. THESE PERSONNEL ARE FURTHER DEFINED (I.E., TYPE OF PERSONNEL) BY THE MILITARY/CIVILIAN MIX VARIABLE TO ALLOW COMPUTATION OF INSTALLATION MILITARY AND CIVILIAN POPULATION LEVELS. THESE POPULATION LEVELS ARE THEMSELVES, A WORKLOAD IN THE SUBSEQUENT TIME PERIOD.

BASECASE ASSUMPTION: ALL TDA MANPOWER REQUIREMENTS WILL BE MET IN MOBILIZATION (I.E., PERSONNEL FILL LEVELS EQUAL REQUIREMENTS).

BASECASE VALUE:
TDAFLP=1.00

FORMAT OF ENTRY: 3 DIGITS PLUS DECIMAL (X.XX), COL 23-26.

****
**** P12 - DEPLOYING MTOE UNITS
- EQUIPMENT FILL LEVEL BY CATEGORY

DEFN: THE PROPORTION OF EQUIPMENT REQUIREMENT TO WHICH DEPLOYING MTOE UNITS WILL BE FILLED, FOR EACH UNIT CATEGORY, FOR EACH UNIT EQUIPMENT CATEGORY.

WARR: IF ALL UNITS ARE TO DEPLOY AT ALO 1, THIS PARAMETER SHOULD BE SET TO 1.00 FOR ALL EQUIPMENT CATEGORIES WITHIN EVERY UNIT CATEGORY (COMPONENT AND DAYS OF DEPLOYMENT AFTER D-DAY). IF UNITS WILL DEPLOY AT ALO 2 OR LESS, THE APPROPRIATE CATEGORIES SHOULD BE SET AT .9 OR LESS. IF THIS PARAMETER IS SET TO A VALUE THAT IS LOWER THAN THE VALUE OF THE M-DAY ON-HAND LEVEL PARAMETER (E09) NO ACTION WILL BE TAKEN I.E. EQUIPMENT WILL REMAIN AT THE M-DAY LEVEL.

NOTES: (1) THIS PARAMETER SHOULD BE SET IN CONJUNCTION WITH P05 AND E09.

(2) IF THE LENGTH OF FILL TIME (P05) IS SET TO ZERO THIS PARAMETER WILL BE IGNORED.

BASECASE ASSUMPTION: ALL DEPLOYING MTOE UNITS WILL BE FILLED TO THEIR EQUIPMENT REQUIREMENT LEVELS, FOR EACH UNIT EQUIPMENT CATEGORY.

BASECASE VALUES: (ALL 1.00)

COMPO=1	X <= 30	CT1=1.00	CT6=1.00	CT11=1.00
		CT2=1.00	CT7=1.00	CT12=1.00
		CT3=1.00	CT8=1.00	CT13=1.00
		CT4=1.00	CT9=1.00	CT14=1.00
		CT5=1.00	CT10=1.00	CT15=1.00
COMPO=1	30 < X <= 60	CT1=1.00	CT6=1.00	CT11=1.00
		CT2=1.00	CT7=1.00	CT12=1.00
		CT3=1.00	CT8=1.00	CT13=1.00
		CT4=1.00	CT9=1.00	CT14=1.00
		CT5=1.00	CT10=1.00	CT15=1.00
COMPO=1	60 < X <= 90	CT1=1.00	CT6=1.00	CT11=1.00
		CT2=1.00	CT7=1.00	CT12=1.00
		CT3=1.00	CT8=1.00	CT13=1.00
		CT4=1.00	CT9=1.00	CT14=1.00
		CT5=1.00	CT10=1.00	CT15=1.00
COMPO=1	90 < X	CT1=1.00	CT6=1.00	CT11=1.00
		CT2=1.00	CT7=1.00	CT12=1.00
		CT3=1.00	CT8=1.00	CT13=1.00
		CT4=1.00	CT9=1.00	CT14=1.00
		CT5=1.00	CT10=1.00	CT15=1.00
COMPO=2	X <= 30	CT1=1.00	CT6=1.00	CT11=1.00
		CT2=1.00	CT7=1.00	CT12=1.00
		CT3=1.00	CT8=1.00	CT13=1.00
		CT4=1.00	CT9=1.00	CT14=1.00
		CT5=1.00	CT10=1.00	CT15=1.00
COMPO=2	30 < X <= 60	CT1=1.00	CT6=1.00	CT11=1.00
		CT2=1.00	CT7=1.00	CT12=1.00
		CT3=1.00	CT8=1.00	CT13=1.00
		CT4=1.00	CT9=1.00	CT14=1.00
		CT5=1.00	CT10=1.00	CT15=1.00
COMPO=2	60 < X <= 90	CT1=1.00	CT6=1.00	CT11=1.00
		CT2=1.00	CT7=1.00	CT12=1.00
		CT3=1.00	CT8=1.00	CT13=1.00
		CT4=1.00	CT9=1.00	CT14=1.00
		CT5=1.00	CT10=1.00	CT15=1.00
COMPO=2	90 < X	CT1=1.00	CT6=1.00	CT11=1.00
		CT2=1.00	CT7=1.00	CT12=1.00
		CT3=1.00	CT8=1.00	CT13=1.00
		CT4=1.00	CT9=1.00	CT14=1.00
		CT5=1.00	CT10=1.00	CT15=1.00
COMPO=3	X <= 30	CT1=1.00	CT6=1.00	CT11=1.00
		CT2=1.00	CT7=1.00	CT12=1.00
		CT3=1.00	CT8=1.00	CT13=1.00
		CT4=1.00	CT9=1.00	CT14=1.00
		CT5=1.00	CT10=1.00	CT15=1.00
COMPO=3	30 < X <= 60	CT1=1.00	CT6=1.00	CT11=1.00
		CT2=1.00	CT7=1.00	CT12=1.00
		CT3=1.00	CT8=1.00	CT13=1.00
		CT4=1.00	CT9=1.00	CT14=1.00
		CT5=1.00	CT10=1.00	CT15=1.00
COMPO=3	60 < X <= 90	CT1=1.00	CT6=1.00	CT11=1.00
		CT2=1.00	CT7=1.00	CT12=1.00
		CT3=1.00	CT8=1.00	CT13=1.00
		CT4=1.00	CT9=1.00	CT14=1.00

COMPO=3	90 < X		CT5=1.00 CT1=1.00 CT2=1.00 CT3=1.00 CT4=1.00	CT10=1.00 CT6=1.00 CT7=1.00 CT8=1.00 CT9=1.00	CT15=1.00 CT11=1.00 CT12=1.00 CT13=1.00 CT14=1.00
COMPO=4		X <= 30	CT5=1.00 CT1=1.00 CT2=1.00 CT3=1.00 CT4=1.00	CT10=1.00 CT6=1.00 CT7=1.00 CT8=1.00 CT9=1.00	CT15=1.00 CT11=1.00 CT12=1.00 CT13=1.00 CT14=1.00
COMPO=4	30 < X <= 60		CT5=1.00 CT1=1.00 CT2=1.00 CT3=1.00 CT4=1.00	CT10=1.00 CT6=1.00 CT7=1.00 CT8=1.00 CT9=1.00	CT15=1.00 CT11=1.00 CT12=1.00 CT13=1.00 CT14=1.00
COMPO=4	60 < X <= 90		CT5=1.00 CT1=1.00 CT2=1.00 CT3=1.00 CT4=1.00	CT10=1.00 CT6=1.00 CT7=1.00 CT8=1.00 CT9=1.00	CT15=1.00 CT11=1.00 CT12=1.00 CT13=1.00 CT14=1.00
COMPO=4	90 < X		CT5=1.00 CT1=1.00 CT2=1.00 CT3=1.00 CT4=1.00	CT10=1.00 CT6=1.00 CT7=1.00 CT8=1.00 CT9=1.00	CT15=1.00 CT11=1.00 CT12=1.00 CT13=1.00 CT14=1.00

FORMAT OF ENTRY: 3 DIGITS PLUS DECIMAL (X.XX)

ENTRIES MUST ALIGN AS FOLLOWS:

COMPO=X	CTX=X.XX	CTX=X.XX	CTXX=X.XX

```
**********************************************************************
****    P13 - NON-DEPLOYING MTOE UNITS
                              - EQUIPMENT FILL LEVEL BY CATEGORY

DEFN:   THE PROPORTION OF EQUIPMENT REQUIREMENT TO WHICH NON-
        DEPLOYING MTOE UNITS WILL BE FILLED FOR EACH COMPONENT,
        FOR EACH UNIT EQUIPMENT CATEGORY.

VARR:   IF ALL UNITS ARE TO BE FILLED TO ALO 1, THIS PARAMETER
        SHOULD BE SET TO 1.00, FOR ALL EQUIPMENT CATEGORIES
        WITHIN EVERY UNIT CATEGORY (COMPONENT AND DAYS OF
        DEPLOYMENT AFTER D-DAY).  IF UNITS ARE TO BE FILLED TO
        ALO 2 OR LESS, THE APPROPRIATE CATEGORIES SHOULD BE
        SET AT .9 OR LESS.  IF THIS PARAMETER IS SET TO A VALUE
        THAT IS LOWER THAN THE VALUE OF THE M-DAY ON-HAND
        LEVEL PARAMETER (E10), NO ACTION WILL BE TAKEN I.E.
        EQUIPMENT WILL REMAIN AT THE M-DAY LEVEL.

        NOTES:(1) THIS PARAMETER SHOULD BE SET IN CONJUNCTION
                  WITH P06 AND E10.

              (2) IF THE LENGTH OF FILL TIME (P06) IS SET TO
                  ZERO THIS PARAMETER WILL BE IGNORED.

BASECASE ASSUMPTION:  ALL NON-DEPLOYING MTOE UNITS WILL BE
        FILLED TO THEIR EQUIPMENT REQUIREMENT LEVELS, FOR EACH
        UNIT EQUIPMENT CATEGORY.

BASECASE VALUES:  (ALL 1.00)
        COMPO=1         CT1=1.00        CT6=1.00        CT11=1.00
                        CT2=1.00        CT7=1.00        CT12=1.00
                        CT3=1.00        CT8=1.00        CT13=1.00
                        CT4=1.00        CT9=1.00        CT14=1.00
                        CT5=1.00       CT10=1.00        CT15=1.00
        COMPO=2         CT1=1.00        CT6=1.00        CT11=1.00
                        CT2=1.00        CT7=1.00        CT12=1.00
                        CT3=1.00        CT8=1.00        CT13=1.00
                        CT4=1.00        CT9=1.00        CT14=1.00
                        CT5=1.00       CT10=1.00        CT15=1.00
        COMPO=3         CT1=1.00        CT6=1.00        CT11=1.00
                        CT2=1.00        CT7=1.00        CT12=1.00
                        CT3=1.00        CT8=1.00        CT13=1.00
                        CT4=1.00        CT9=1.00        CT14=1.00
                        CT5=1.00       CT10=1.00        CT15=1.00
        COMPO=4         CT1=1.00        CT6=1.00        CT11=1.00
                        CT2=1.00        CT7=1.00        CT12=1.00
                        CT3=1.00        CT8=1.00        CT13=1.00
                        CT4=1.00        CT9=1.00        CT14=1.00
                        CT5=1.00       CT10=1.00        CT15=1.00
----------------------------------------------------------------------
FORMAT OF ENTRY:  3 DIGITS PLUS DECIMAL (X.XX)

ENTRIES MUST ALIGN AS FOLLOWS:

        COMPO=X         CTX=X.XX        CTX=X.XX        CTXX=X.XX
----------------------------------------------------------------------
```

```
**********************************************************************
****    P14 - BASE OPERATIONS EQUIPMENT FILL LEVEL BY CATEGORY

DEFN:   THE PROPORTION OF BASE OPERATIONS EQUIPMENT REQUIREMENTS
        TO WHICH TOA UNITS WILL BE FILLED, FOR EACH BASE OPS
        EQUIPMENT CATEGORY.

NARR:   IF THIS PARAMETER IS SET TO 1.00, ALL COMPUTED BASE OPS
        EQUIPMENT REQUIREMENTS WILL BE ASSUMED TO HAVE BEEN
        FILLED AND WILL BE SHOWN AS AN ON-HAND WORKLOAD.  IF BASE
        OPERATIONS EQUIPMENT SHOULD BE FILLED TO LESS THAN THE
        COMPUTED REQUIRED AMOUNT, SET EACH CATEGORY TO THE
        PROPORTION TO WHICH IT SHOULD BE FILLED.

        NOTE: THIS PARAMETER SHOULD BE SET IN CONJUCTION
              WITH THE M-DAY ON-HAND LEVEL PARAMETER, E11.

BASECASE ASSUMPTION:  ALL TOA UNITS WILL BE FILLED TO THEIR BASE
        OPS EQUIPMENT REQUIREMENT LEVELS, FOR EACH BASE OPS
        EQUIPMENT CATEGORY.

BASECASE VALUES:  (ALL 1.00)
  CT1=1.00  CT4=1.00  CT7=1.00  CT10=1.00  CT13=1.00  CT16=1.00
  CT2=1.00  CT5=1.00  CT8=1.00  CT11=1.00  CT14=1.00  CT17=1.00
  CT3=1.00  CT6=1.00  CT9=1.00  CT12=1.00  CT15=1.00  CT18=1.00
----------------------------------------------------------------------
FORMAT OF ENTRY:  3 DIGITS PLUS DECIMAL (X.XX)

ENTRIES MUST ALIGN AS FOLLOWS:

  CTX=X.XX  CTX=X.XX  CTX=X.XX  CTXX=X.XX  CTXX=X.XX  CT16=X.XX
----------------------------------------------------------------------
```

****
**** E31 - WORKWEEK BY TIME PERIOD AND MANHOUR AVAILABILITY

DEFN: TABLE OF WORKWEEK LENGTH BY MOBILIZATION TIME PERIOD AND THE ANNUAL AVAILABLE HOURS.

NARR: THIS PARAMETER ALLOWS THE USER TO SPECIFY THE LENGTH OF THE MOBILIZATION WORKWEEK AND THE CORRESPONDING NUMBER OF ANNUAL AVAILABLE WORK HOURS. THIS PARAMETER, AMONG OTHERS, IS USED TO CONVERT THE MAN-HOURS REQUIRED TO ACCOMPLISH A GIVEN FUNCTIONAL WORKLOAD INTO MAN-YEARS (OR MANPOWER SPACES) REQUIRED. THE LENGTH OF THE WORKWEEK (E.G., 40 HOURS) IS ONLY ONE FACTOR THAT HELPS DEFINE ANNUAL HOURS AVAILABLE FOR WORK. OTHER FACTORS RELATE TO LEAVE/HOLIDAY, TRAINING, SOCIAL PROGRAMS, AND OTHER POLICIES. TO DETERMINE THE MAN-HOUR AVAILABILITY (MHA), OR THE ACTUAL TIME AN INDIVIDUAL IS AVAILABLE FOR PRODUCTIVE WORK IN THE FUNCTIONAL AREA/WORK CENTER ASSIGNED, THREE CATEGORIES OF TIME ARE APPLICABLE: ASSIGNED TIME (AT), NON-AVAILABLE TIME (NAT), AND AVAILABLE TIME (MHA).

MHA = AT - NAT

IN PEACETIME, BASED ON LEAVE/HOLIDAY, ETC., POLICY,

ANNUAL AT = 2016 = 168(HOURS/MONTH) * 12(MONTHS)
ANNUAL NAT = 288 = 24(HOURS/MONTH) * 12(MONTHS)

BASED ON A BREAKOUT OF NAT BY REASON (LEAVE, PROCESSING, MEDICAL, ORGANIZATIONAL ADMINISTRATION, EDUCATION AND TRAINING, SOCIAL PROGRAMS AND ABSENTEEISM); THEREFORE,

MHA = 1728 = 2016 - 288.

IN MOBILIZATION THE MHA WILL CHANGE BECAUSE THE WORKWEEK IS LONGER AND POLICIES REGARDING LEAVE/HOLIDAYS, ETC., CHANGE. BASED ON OSD GUIDANCE, ANNUAL MHA AND NAT AT DIFFERING LENGTHS OF WORKWEEK ARE AS FOLLOWS:

	***** WORKWEEK *****		
	40	*60*	*48*
ANNUAL AT	2016	3132	2508
ANNUAL NAT	288	144	276
ANNUAL MHA	1728	2988	2232

THE EFFECT OF LENGTHENING THE WORKWEEK OR REDUCING NON-AVAILABLE TIME IS TO MAKE AN INDIVIDUAL HAVE MORE PRODUCTIVE (ON-THE-JOB) TIME, THEREBY REDUCING MANPOWER REQUIREMENTS. THE USER MAY SELECT THE TIME (IN 10-DAY INTERVALS, E.G., TIME PERIOD=01 IS M+1 THROUGH M+10) AT WHICH THE ARMY CHANGES THE LENGTH OF THE WORKWEEK, AS WELL AS THE POLICIES WHICH IMPACT ON NAT.

BASECASE ASSUMPTION: WORKWEEK LENGTH BY MOBILIZATION TIME PERIOD AND NON-AVAILABLE TIME POLICIES WILL BE ESTABLISHED CONSISTENT WITH OSD GUIDANCE.

TEST-ONE VALUES:
TIME PERIOD= 0 HRS/WK=40 MHA=1740
TIME PERIOD= 1 HRS/WK=60 MHA=2940

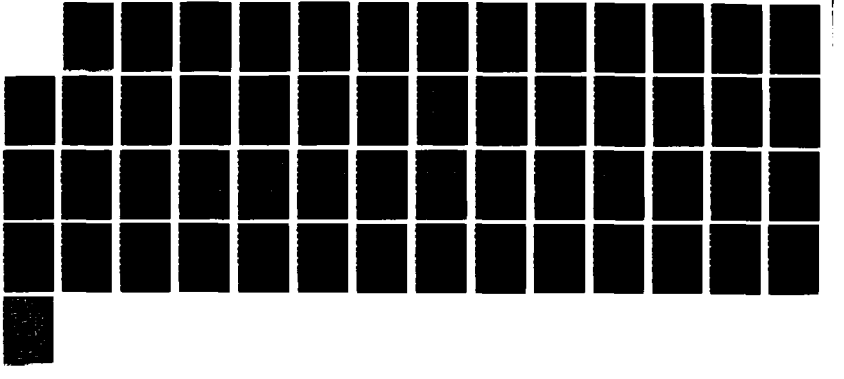
FORMAT OF ENTRY:
TIME PERIOD: 2 DIGITS, RIGHT-JUSTIFIED, NO DECIMAL.
HRS/WK: 2 DIGITS, RIGHT-JUSTIFIED, NO DECIMAL.
MHA: 4 DIGITS, RIGHT-JUSTIFIED, NO DECIMAL.

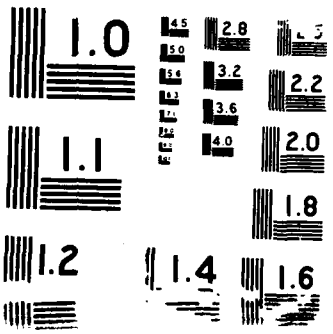
ENTRIES MUST AS FOLLOWS:

TIME PERIOD=XX HRS/WK=XX MHA=XXXX

AD-A194 263 MOBILIZATION POLICY EVALUATION STUDY (MOBPES) MODEL SENSITIVITY ANALYSIS(U) ARMY CONCEPTS ANALYSIS AGENCY BETHESDA MD J FOWLER 30 SEP 87 CAA-SR-87-19 2/2

UNCLASSIFIED F/G 15/1 NL

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1.2
1.4
1.6
1.8
2.0
2.2
2.8
3.2
3.6
4.0
4.5
5.0

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****    E02 - TRAINING LOAD ADJUSTMENT FACTOR

DEFN:   TRAINING LOAD EXPRESSED AS A PROPORTION OF THE ARMY
        TRAINING REQUIREMENTS AND RESOURCES SYSTEM (ATRRS)
        MOBILIZATION INPUT.

NARR:   THIS PARAMETER ALLOWS THE USER TO MAKE MACRO ADJUSTMENTS
        TO THE ATRRS PRODUCED MOBILIZATON TRAINING INPUT.  RATHER
        THAN MAKING CHANGES TO ATRRS DATA AT THE COURSE LEVEL OF
        DETAIL (E.G., CONVENING DATES, COURSE LENGTH, STUDENT/
        TRAINEE LOADS, ETC.), THE USER CAN SIMPLY APPLY A MACRO
        TECHNIQUE WHICH SCALES THE TRAINING LOAD UP OR DOWN BY A
        PROPORTION.  FOR EXAMPLE, IF THE PROPORTION IS 1.25, THEN
        THE TRAINING LOAD AT EVERY TIME PERIOD WILL BE 25%
        GREATER THAN THE INITIAL ATRRS INPUT.  WHILE THIS TECH-
        NIQUE EMBODIES MANY INCORRECT ASSUMPTIONS (AT THE MICRO-
        LEVEL OF DETAIL), IT CAN BE VERY USEFUL WHEN ESTIMATING
         ORDER OF MAGNITUDE  CHANGES TO TRAINING RESOURCE
        REQUIREMENTS IN A RAPID MANNER.

BASECASE ASSUMPTION:  THE ATRRS INPUT DATA ACCURATELY REFLECTS
        THE MOBILIZATION TRAINING WORKLOAD.

BASECASE VALUE:
        TRAPCT=1.00
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FORMAT OF ENTRY:  3 DIGITS PLUS DECIMAL (X.XX), COL 23-26
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**** E04 - IRR, IMA, RETIREE SHOW RATES

DEFN: THE PROPORTION OF INDIVIDUAL READY RESERVE (IRR), MOBILIZATION DESIGNEES (IMA) AND RETIREES WHO ARE PREASSIGNED TO MOBILIZATION BILLETS THAT WILL ACTUALLY SHOW UP AT THE SCHEDULED TIME.

NARR: THIS PARAMETER ALLOWS THE USER TO SPECIFY THE SHOW RATES FOR THREE CATEGORIES OF INACTIVE ARMY PERSONNEL. SHOW RATES ARE USUALLY THOUGHT TO BE A FUNCTION OF THREE FACTORS:

IDENTIFICATION: DO WE KNOW WHERE HE IS?

AVAILABILITY: CAN HE COME?

PROPENSITY: WILL HE COME?

SINCE THESE INACTIVE PERSONNEL COMMUNITIES HAVE BEEN SCREENED, PREASSIGNED AND ARE CORRESPONDED WITH ON A RECURRING BASIS, IT IS ANTICIPATED THAT THESE SHOW RATES WILL BE HIGHER THAN TYPICALLY ASSUMED.

BASECASE ASSUMPTION: ALL IRRS, IMA AND RETIREES WILL ARRIVE AT SCHEDULED TIME, I.E. =1.00

BASE-CASE VALUES:
IRRSR= .70
IMOSR=1.00
RETSR .90

FORMAT OF ENTRY: 3 DIGITS PLUS DECIMAL (X.XX), COL 22-25.

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**** ED6 - DEPLOYING MTOE UNITS - PERSONNEL ON-HAND ON M-DAY

DEFN: PROPORTION OF PERSONNEL STRUCTURE STRENGTH ON-HAND ON M-DAY FOR DEPLOYING MTOE UNITS, BY UNIT CATEGORY.

VARR: THIS PARAMETER ALLOWS THE USER TO SELECTIVELY CHANGE THE M-DAY PERSONNEL OPERATING STRENGTH LEVELS (AS A PROPORTION OF REQUIREMENTS) FOR DEPLOYING MTOE UNITS, BY UNIT CATEGORY (COMPONENT AND DEPLOYMENT DATE COUPLETS). THE USER HAS TWO BASIC OPTIONS WHICH CAN BE INVOKED: (1) ALL DEPLOYING MTOE PERSONNEL STRENGTH LEVELS MAY BE SET EQUAL TO THE CURRENT ACTUAL ON-HAND LEVEL, OR (2) PERSONNEL STRENGTH LEVELS MAY BE SET EQUAL TO SOME PROPORTION OF STRUCTURE STRENGTHS (E.G., 85% OF STRUCTURE STRENGTH FOR COMPO 1 UNITS DEPLOYING BETWEEN M+60 AND M+90). THE SECOND OPTION, IN EFFECT, ALLOWS THE USER TO WRITE-OVER THE EXISTING VALUES TO ESTABLISH AN ALTERNATIVE UNIT OPERATING STRENGTH PROFILE. THIS CAPABILITY CAN BE USED TO ASSESS THE IMPACT ON THE CONUS BASE SUPPORT STRUCTURE OF HIGHER OR LOWER PEACETIME MANNING LEVELS.

TO INVOKE THE ACTUAL PEACETIME ON-HAND VALUES, THE USER TAKES NO ACTION, SINCE THE BASECASE VALUES HAVE BEEN SET ACCORDINGLY. TO OVERRIDE THESE VALUES, THE USER MUST ENTER A PROPORTION BY UNIT COMPONENT AND DEPLOYMENT DATE.

BASECASE ASSUMPTION: DEPLOYING UNIT PERSONNEL ON-HAND LEVELS ON M-DAY ARE EQUAL TO THE ACTUAL UNIT OPERATING STRENGTH

BASECASE VALUES: (ALL OH)

COMPO=1	X <= 30	ON-HAND=OH
	30 < X <= 60	=OH
	60 < X <= 90	=OH
	90 < X	=OH
COMPO=2	X <= 30	ON-HAND=OH
	30 < X <= 60	=OH
	60 < X <= 90	=OH
	90 < X	=OH
COMPO=3	X <= 30	ON-HAND=OH
	30 < X <= 60	=OH
	60 < X <= 90	=OH
	90 < X	=OH
COMPO=4	X <= 30	ON-HAND=OH
	30 < X <= 60	=OH
	60 < X <= 90	=OH
	90 < X	=OH

FORMAT OF ENTRY: 3 DIGITS PLUS DECIMAL (X.XX), COL 53-56
OR
2 CHAR=OH, COL 53-54.

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****    E07 - NON-DEPLOYING MTOE UNITS
                              - PERSONNEL ON-HAND ON M-DAY

DEFN:   PROPORTION OF PERSONNEL STRUCTURE STRENGTH ON-HAND ON
        M-DAY FOR NON-DEPLOYING UNITS, BY COMPONENT.

VARR:   THIS PARAMETER ALLOWS THE USER TO CHANGE SELECTIVELY (BY
        COMPONENT) THE M-DAY PERSONNEL OPERATING STRENGTH LEVELS
        FOR NON-DEPLOYING MTOE UNITS.  THE USER HAS TWO OPTIONS:

            (1) ALL NON-DEPLOYING MTOE UNIT PERSONNEL
                STRENGTH LEVELS EQUAL THE CURRENT,
                ACTUAL ON-HAND LEVEL (I.E. OH)

            (2) PERSONNEL STRENGTH LEVELS SET TO A
                PROPORTION OF STRUCTURE STRENGTH (I.E.
                75% = .750)

        THE SECOND OPTION ALLOWS THE USER TO ASSESS THE
        IMPACT ON THE CONUS BASE SUPPORT STRUCTURE OF
        HIGHER OR LOWER PEACETIME MANNING LEVELS.

BASECASE ASSUMPTION:  NON-DEPLOYING UNIT PERSONNEL ON-HAND LEVEL
        ON M-DAY ARE EQUAL TO THE ACTUAL UNIT OPERATING STRENGTHS

BASECASE VALUES:  (ALL OH)
        COMPO=1              ON-HAND=OH
        COMPO=2              ON-HAND=OH
        COMPO=3              ON-HAND=OH
        COMPO=4              ON-HAND=OH
----------------------------------------------------------------------
FORMAT OF ENTRY:  3 DIGITS PLUS DECIMAL (X.XX), COL 42-45
                        OR
                  2 CHAR=OH, COL 42 - 43.
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**** E_{08} - TRAINING EQUIPMENT ON-HAND ON M-DAY

DEFN: M-DAY TRAINING EQUIPMENT STRENGTH PARAMETER, FOR EACH TRAINING EQUIPMENT CATEGORY.

NARR: THIS PARAMETER ALLOWS THE USER TO SPECIFY THE M-DAY ON-HAND TRAINING EQUIPMENT LEVELS BY TRAINING EQUIPMENT CATEGORY. SETTING THE ON-HAND LEVELS TO LESS THAN OR GREATER THAN ONE ALLOWS THE USER TO ASSESS THE MOBILIZATION IMPACT OF LOWER OR HIGHER PEACETIME AUTHORIZED LEVELS.

BASECASE ASSUMPTIONS: TRAINING EQUIPMENT ON-HAND LEVELS ON M-DAY ARE EQUAL TO THE ACTUAL LEVELS.

BASECASE VALUES: (ALL 1.00)

CT1=1.00	CT10=1.00	CT19=1.00	CT28=1.00	CT37=1.00	CT46=1.00
CT2=1.00	CT11=1.00	CT20=1.00	CT29=1.00	CT38=1.00	CT47=1.00
CT3=1.00	CT12=1.00	CT21=1.00	CT30=1.00	CT39=1.00	CT48=1.00
CT4=1.00	CT13=1.00	CT22=1.00	CT31=1.00	CT40=1.00	CT49=1.00
CT5=1.00	CT14=1.00	CT23=1.00	CT32=1.00	CT41=1.00	CT50=1.00
CT6=1.00	CT15=1.00	CT24=1.00	CT33=1.00	CT42=1.00	CT51=1.00
CT7=1.00	CT16=1.00	CT25=1.00	CT34=1.00	CT43=1.00	CT52=1.00
CT8=1.00	CT17=1.00	CT26=1.00	CT35=1.00	CT44=1.00	CT53=1.00
CT9=1.00	CT18=1.00	CT27=1.00	CT36=1.00	CT45=1.00	

FORMAT OF ENTRY: 3 DIGITS PLUS DECIMAL (X.XX).

ENTRIES MUST ALIGN AS FOLLOWS:

CTx=X.XX	CTXX=X.XX	CTXX=X.XX	CTXX=X.XX	CTXX=X.XX	CTXX=X.XX

****
**** E09 - DEPLOYING MTOE UNITS
- EQUIPMENT ON-HAND ON M-DAY BY CATEGORY

DEFN: M-DAY DEPLOYING UNIT EQUIPMENT STRENGTH PARAMETER, FOR EACH UNIT CATEGORY (DEPLOYMENT DATE BY COMPONENT), FOR EACH UNIT EQUIPMENT CATEGORY.

NARR: THIS PARAMETER ALLOWS THE USER TO SPECIFY THE M-DAY DEPLOYING UNIT ON-HAND EQUIPMENT LEVELS (AS A PROPORTION OF THE STRUCTURE LEVEL), BY UNIT CATEGORY AND UNIT EQUIPMENT CATEGORY COUPLETS. SINCE ACTUAL UNIT-LEVEL EQUIPMENT ON-HAND DATA ARE PROVIDED AS AN AUTOMATED INPUT TO THE MODEL, THIS PARAMETER WILL ALLOW THE USER TO WRITE-OVER THESE VALUES TO ANALYZE THE IMPACT OF ALTERNATIVE PEACETIME EQUIPMENT LEVELS. POTENTIAL USES OF THE CAPABILITY RELATE TO ASSESSMENTS OF THE IMPACT ON THE CONUS-BASE SUPPORT REQUIREMENTS OF HIGHER OR LOWER UNIT EQUIPAGE LEVELS. THE UNIT CATEGORY, SINCE IT IS BASED ON COMPONENT AND DEPLOYMENT DATE, CAN BE USEFUL IN ANALYSIS OF PEACETIME EQUIPMENT REALLOCATION SCHEMES. FOR INSTANCE, CAN A REALLOCATION OF EQUIPMENT TO EARLIER DEPLOYING UNITS FROM LATER DEPLOYING UNITS RESULT IN A NET SAVINGS OF CONUS SUPPORT RESOURCES (OR IS IT MERELY A TIME PROFILE REDISTRIBUTION OF THE SAME RESOURCE REQUIREMENT)? OTHER USES INCLUDE: (1) REALLOCATIONS FROM AC TO RC UNITS, (2) RESOURCE SAVINGS ACHIEVABLE BY ESTABLISHING HIGHER PEACETIME EQUIPAGE LEVELS (REDUCTION OF MOBILIZATION SUPPORT REQUIREMENTS), AND (3) INTER-ACTIONS WITH BASE OPS OR TRAINING EQUIPMENT ALLOCATIONS (EQUIPPING DEPLOYING UNITS AT THE COST OF REDUCING BASE OPS OR TRAINING EQUIPAGE LEVELS).

BASECASE ASSUMPTION: DEPLOYING UNIT EQUIPMENT ON-HAND LEVELS ON M-DAY ARE EQUAL TO THE ACTUAL LEVELS.

BASECASE VALUES: (ALL 0%)

COMPO=1	X <= 30	CT1=0%	CT6=0%	CT11=0%
		CT2=0%	CT7=0%	CT12=0%
		CT3=0%	CT8=0%	CT13=0%
		CT4=0%	CT9=0%	CT14=0%
		CT5=0%	CT10=0%	CT15=0%
COMPO=1	30 < X <= 60	CT1=0%	CT6=0%	CT11=0%
		CT2=0%	CT7=0%	CT12=0%
		CT3=0%	CT8=0%	CT13=0%
		CT4=0%	CT9=0%	CT14=0%
		CT5=0%	CT10=0%	CT15=0%
COMPO=1	60 < X <= 90	CT1=0%	CT6=0%	CT11=0%
		CT2=0%	CT7=0%	CT12=0%
		CT3=0%	CT8=0%	CT13=0%
		CT4=0%	CT9=0%	CT14=0%
		CT5=0%	CT10=0%	CT15=0%
COMPO=1	90 < X	CT1=0%	CT6=0%	CT11=0%
		CT2=0%	CT7=0%	CT12=0%
		CT3=0%	CT8=0%	CT13=0%
		CT4=0%	CT9=0%	CT14=0%
		CT5=0%	CT10=0%	CT15=0%
COMPO=2	X <= 30	CT1=0%	CT6=0%	CT11=0%
		CT2=0%	CT7=0%	CT12=0%
		CT3=0%	CT8=0%	CT13=0%
		CT4=0%	CT9=0%	CT14=0%
		CT5=0%	CT10=0%	CT15=0%
COMPO=2	30 < X <= 60	CT1=0%	CT6=0%	CT11=0%
		CT2=0%	CT7=0%	CT12=0%
		CT3=0%	CT8=0%	CT13=0%
		CT4=0%	CT9=0%	CT14=0%
		CT5=0%	CT10=0%	CT15=0%
COMPO=2	60 < X <= 90	CT1=0%	CT6=0%	CT11=0%
		CT2=0%	CT7=0%	CT12=0%
		CT3=0%	CT8=0%	CT13=0%
		CT4=0%	CT9=0%	CT14=0%
		CT5=0%	CT10=0%	CT15=0%
COMPO=2	90 < X	CT1=0%	CT6=0%	CT11=0%
		CT2=0%	CT7=0%	CT12=0%
		CT3=0%	CT8=0%	CT13=0%
		CT4=0%	CT9=0%	CT14=0%
		CT5=0%	CT10=0%	CT15=0%
COMPO=3	X <= 30	CT1=0%	CT6=0%	CT11=0%
		CT2=0%	CT7=0%	CT12=0%
		CT3=0%	CT8=0%	CT13=0%
		CT4=0%	CT9=0%	CT14=0%
		CT5=0%	CT10=0%	CT15=0%

COMPO=3	30 < X <= 60	CT1=0H	CT6=0H	CT11=0H
		CT2=0H	CT7=0H	CT12=0H
		CT3=0H	CT8=0H	CT13=0H
		CT4=0H	CT9=0H	CT14=0H
		CT5=0H	CT10=0H	CT15=0H
COMPO=3	60 < X <= 90	CT1=0H	CT6=0H	CT11=0H
		CT2=0H	CT7=0H	CT12=0H
		CT3=0H	CT8=0H	CT13=0H
		CT4=0H	CT9=0H	CT14=0H
		CT5=0H	CT10=0H	CT15=0H
COMPO=3	90 < X	CT1=0H	CT6=0H	CT11=0H
		CT2=0H	CT7=0H	CT12=0H
		CT3=0H	CT8=0H	CT13=0H
		CT4=0H	CT9=0H	CT14=0H
		CT5=0H	CT10=0H	CT15=0H
COMPO=4	X <= 30	CT1=0H	CT6=0H	CT11=0H
		CT2=0H	CT7=0H	CT12=0H
		CT3=0H	CT8=0H	CT13=0H
		CT4=0H	CT9=0H	CT14=0H
		CT5=0H	CT10=0H	CT15=0H
COMPO=4	30 < X <= 60	CT1=0H	CT6=0H	CT11=0H
		CT2=0H	CT7=0H	CT12=0H
		CT3=0H	CT8=0H	CT13=0H
		CT4=0H	CT9=0H	CT14=0H
		CT5=0H	CT10=0H	CT15=0H
COMPO=4	60 < X <= 90	CT1=0H	CT6=0H	CT11=0H
		CT2=0H	CT7=0H	CT12=0H
		CT3=0H	CT8=0H	CT13=0H
		CT4=0H	CT9=0H	CT14=0H
		CT5=0H	CT10=0H	CT15=0H
COMPO=4	90 < X	CT1=0H	CT6=0H	CT11=0H
		CT2=0H	CT7=0H	CT12=0H
		CT3=0H	CT8=0H	CT13=0H
		CT4=0H	CT9=0H	CT14=0H
		CT5=0H	CT10=0H	CT15=0H

FORMAT OF ENTRY: 3 DIGITS PLUS DECIMAL (X.XX);
OR
2 CHAR=0H

ENTRIES MUST ALIGN AS FOLLOWS:

COMPO=X	CTX=X.XX	CTX=X.XX	CTXX=X.XX
(OR) =X	CTX=0H	CTX=0H	CTXX=0H

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**** E10 - NON-DEPLOYING MTOE UNITS
- EQUIPMENT ON-HAND ON M-DAY BY CATEGORY

DEFN: M-DAY NON-DEPLOYING UNIT EQUIPMENT STRENGTH FOR EACH UNIT EQUIPMENT CATEGORY.

VARR: THIS PARAMETER ALLOWS THE USER TO SPECIFY THE M-DAY NON-DEPLOYING UNIT ON-HAND EQUIPMENT LEVELS (AS A PROPORTION OF M-DAY ACTUAL INPUT DATA), BY UNIT EQUIPMENT CATEGORY AND COMPONENT COUPLETS. SINCE ACTUAL UNIT-LEVEL EQUIPMENT ON-HAND DATA ARE PROVIDED AS AN AUTOMATED INPUT TO THE MODEL, THIS PARAMETER WILL ALLOW THE USER TO WRITE-OVER THESE VALUES TO ANALYZE THE IMPACT OF ALTERNATIVE PEACETIME EQUIPMENT LEVELS. POTENTIAL USES OF THIS CAPABILITY RELATE TO ASSESSMENTS OF THE IMPACT ON THE CONUS-BASE SUPPORT REQUIREMENTS OF HIGHER OR LOWER EQUIPAGE LEVELS.

BASECASE ASSUMPTIONS: NON-DEPLOYING UNIT EQUIPMENT ON-HAND LEVELS ON M-DAY ARE EQUAL TO THE ACTUAL LEVELS.

BASECASE VALUES: (ALL 1.00)

COMPO=1	CT1=0H	CT6=0H	CT11=0H
	CT2=0H	CT7=0H	CT12=0H
	CT3=0H	CT8=0H	CT13=0H
	CT4=0H	CT9=0H	CT14=0H
	CT5=0H	CT10=0H	CT15=0H
COMPO=2	CT1=0H	CT6=0H	CT11=0H
	CT2=0H	CT7=0H	CT12=0H
	CT3=0H	CT8=0H	CT13=0H
	CT4=0H	CT9=0H	CT14=0H
	CT5=0H	CT10=0H	CT15=0H
COMPO=3	CT1=0H	CT6=0H	CT11=0H
	CT2=0H	CT7=0H	CT12=0H
	CT3=0H	CT8=0H	CT13=0H
	CT4=0H	CT9=0H	CT14=0H
	CT5=0H	CT10=0H	CT15=0H
COMPO=4	CT1=0H	CT6=0H	CT11=0H
	CT2=0H	CT7=0H	CT12=0H
	CT3=0H	CT8=0H	CT13=0H
	CT4=0H	CT9=0H	CT14=0H
	CT5=0H	CT10=0H	CT15=0H

FORMAT OF ENTRY: 3 DIGITS PLUS DECIMAL (X.XX);
OR
2 CHAR=0H

ENTRIES MUST ALIGN AS FOLLOWS:

	COMPO=X	CTX=X.XX	CTX=X.XX	CTXX=X.XX
OR:	COMPO=X	CTX=0H	CTX=0H	CTXX=0H

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****    E11 - BASE OPERATIONS EQUIPMENT ON-HAND ON M-DAY
                          BY CATEGORY

DEFN:   M-DAY BASE OPERATIONS EQUIPMENT STRENGTH FOR EACH BASE
        OPS EQUIPMENT CATEGORY.

NARR:   THIS PARAMETER ALLOWS THE USER TO SPECIFY THE M-DAY
        ON-HAND BASE OPS EQUIPMENT LEVELS (AS A PROPORTION OF
        ACTUAL INPUT DATA), BY BASE OPS EQUIPMENT CATEGORY.
        SINCE ACTUAL BASE OPS EQUIPMENT ON-HAND DATA ARE PROVIDED
        AS AN AUTOMATED INPUT TO THE MODEL, THIS PARAMETER WILL
        ALLOW THE USER TO WRITE-OVER THESE VALUES TO ANALYZE
        THE IMPACT OF ALTERNATIVE PEACETIME EQUIPMENT LEVELS.
        POTENTIAL USES OF THIS CAPABILITY RELATE TO ASSESSMENT
        OF THE IMPACT ON CONUS-BASE SUPPORT REQUIREMENTS OF
        HIGHER OR LOWER EQUIPAGE LEVELS.

 BASECASE ASSUMPTIONS:  BASE OPS EQUIPMENT ON-HAND LEVELS
        ON M-DAY ARE EQUAL TO THE ACTUAL LEVELS.

BASECASE VALUES:  (ALL 1.00)
  CT1=1.00  CT4=1.00  CT7=1.00  CT10=1.00  CT13=1.00  CT16=1.00
  CT2=1.00  CT5=1.00  CT8=1.00  CT11=1.00  CT14=1.00  CT17=1.00
  CT3=1.00  CT6=1.00  CT9=1.00  CT12=1.00  CT15=1.00  CT18=1.00
----------------------------------------------------------------------
FORMAT OF ENTRY:  3 DIGITS PLUS DECIMAL (X.XX).

ENTRIES MUST ALIGN AS FOLLOWS:

  CTX=X.XX  CTX=X.XX  CTX=X.XX  CTXX=X.XX  CTXX=X.XX  CTXX=X.XX
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**** E22 - PRODUCTIVITY ADJUSTMENT FACTOR

DEFN: PRODUCTIVITY ADJUSTMENT FACTORS THAT ACCOUNT FOR CHANGES IN WORKER PRODUCTIVITY AS THE LENGTH OF THE WORKWEEK INCREASES DURING MOBILIZATION. FOR INSTANCE, AS THE LENGTH OF THE WORKWEEK INCREASES 50%, MOVING FROM A 40-HOUR TO A 60-HOUR WORKWEEK, WORKER PRODUCTIVITY (OUTPUT PER WEEK) MAY INCREASE AT A LOWER PERCENTAGE. THIS OCCURS BECAUSE OF WORKER FATIGUE, INCREASED ABSENTEEISM, ETC.

NARR: THIS PARAMETER ALLOWS THE USER TO SPECIFY THE PRODUCTIVITY ADJUSTMENT FACTOR (PAF) AS THE LENGTH OF THE WORKWEEK VARIES. THE PAF ENTERS INTO THE CONVERSION OF MAN-HOURS REQUIRED TO ACCOMPLISH WORKLOAD TO MAN-YEARS (OR SPACES) REQUIRED. AS THE LENGTH OF THE WORKWEEK INCREASES, AND POLICIES REGARDING LEAVE/HOLIDAY, TRAINING-TIME, ETC., CHANGE, AN INDIVIDUAL HAS MORE ASSIGNED TIME (OR MAN-HOUR AVAILABILITY (MHA)) TO ACCOMPLISH WORKLOAD. HOWEVER, A SIMPLE RATIO OF MHA UNDER THE LONGER WORKWEEK TO MHA UNDER THE ORIGINAL WORKWEEK MAY OVERSTATE THE INCREASED ABILITY TO ACCOMPLISH WORKLOAD. THIS IS BECAUSE, AS A WORKER MOVES TO A LONGER WORKWEEK AND THIS IS MAINTAINED OVER TIME, OTHER FACTORS INFLUENCE PRODUCTIVITY. WHILE CERTAIN FACTORS CONTRIBUTE TO AN INCREASE IN PRODUCTIVITY IN A WARTIME ENVIRONMENT, (E.G., PATRIOTISM), STUDIES HAVE SHOWN THAT PRODUCTIVITY WILL DECLINE OVER TIME BECAUSE OF FATIGUE, INCREASED ABSENTEEISM, MISTAKES, ETC. MOREOVER, THIS CAN VARY SIGNIFICANTLY DEPENDING ON THE FUNCTION (TYPE OF WORK) BEING PERFORMED.

THE CURRENT GUIDANCE REGARDING CHANGES IN WORKER PRODUCTIVITY IN A WARTIME ENVIRONMENT IS AS FOLLOWS:

LENGTH-OF-WORKWEEK	P.A.F.
60 HRS/WEEK	1.415
48 HRS/WEEK	1.166

THAT IS, DURING THE 60-HOUR WORKWEEK, EVEN THOUGH ANNUAL ASSIGNED HOURS INCREASE TO 2988 (FROM THE 40-HOUR WORKWEEK MHA OF 1728), AN INCREASE OF 72.9%, THE WORKER WILL BE ONLY 41.5% MORE PRODUCTIVE. THESE FIGURES EMBODY THE CURRENT GUIDANCE ON NON-ASSIGNED TIME (LEAVE/HOLIDAY, ETC., POLICY) AND MAN-HOUR AVAILABILITIES (MHA). THIS IS SUMMARIZED BELOW:

LENGTH OF WORKWEEK	% INCREASE IN MHA	% INCREASE IN PRODUCTIVITY (PAF)
60	72.9	41.5
48	29.2	16.6

THIS GUIDANCE CAN BE EXTRAPOLATED FOR OTHER WORKWEEK LENGTHS.

BASECASE ASSUMPTION: THE PRODUCTIVITY ADJUSTMENT FACTOR DOES NOT VARY BY FUNCTIONAL CODE; IT VARIES ONLY BY LENGTH OF WORKWEEK. BASECASE VALUES WILL BE SET AT LEVELS CORRESPONDING TO THE CURRENT GUIDANCE.

BASECASE VALUES:
FUNCTIONAL CODE=ALL HRS/WK=48 P.A.F.=1.166
FUNCTIONAL CODE=ALL HRS/WK=60 P.A.F.=1.415

FORMAT OF ENTRY:
FUNCTIONAL CODE:
5 CHAR, NUMERIC PORTION IN POSITIONS 2-4
OR
3 CHAR = ALL
HRS/WK: 2 DIGITS, RIGHT-JUSTIFIED, NO DECIMAL.
P.A.F.: 4 DIGITS PLUS DECIMAL (X.XXX).

ENTRIES MUST ALIGN AS FOLLOWS:

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**** I31 - PRISONER PROPORTION

DEFN: THE PROPORTION OF THE MILITARY POPULATION WHICH IS IN PRISON.

NARR: THIS PROPORTION IS MULTIPLIED BY THE MILITARY POPULATION OF EACH INSTALLATION AND SUBTRACTED FROM EACH INSTALLATION. THE SUM OF THESE PLUS THE NUMBER OF OCONUS PRISONERS (GENERATED BY MULTIPLYING THIS PROPORTION TIMES I07, OCONUS STRENGTH OF THE ARMY) IS DISTRIBUTED TO INSTALLATIONS. THE NUMBER OF PRISONERS TO EACH PRISON IS PROPORTIONAL TO THE CAPACITY OF THE PRISON.

NOTE: THE PRISONER PROPORTION IS BASED ON HISTORICAL DATA FROM ODCSPER. IT PROBABLY WILL NOT BE CHANGED UNLESS THERE IS A RADICAL SCENARIO CHANGE.

BASECASE VALUE:

PRIPCT= .0027

FORMAT OF ENTRY: 7 DIGITS PLUS DECIMAL (X.XXXXXX), COL 23 - 31.

```
**********************************************************************
****    I02 - TDA MILITARY AND CIVILIAN M-DAY MANNING LEVELS

DEFN:   THE PROPORTION OF THE ACTUAL ONHAND LEVELS WHICH
        WILL BE USED.

NARR:

BASECASE ASSUMPTION:

BASECASE VALUES:
        CPTML=1.00          MPTML=1.00
----------------------------------------------------------------------
FORMAT OF ENTRY:  3 DIGITS PLUS DECIMAL (X.XX).

ENTRIES MUST BE ALIGNED AS FOLLOWS:

        CPTML=X.XX      MPTML=X.XX
----------------------------------------------------------------------
```

SUPPLEMENTAL NARRATIVE:

DEFN: The proportion of the actual onhand levels which will be used as the M-day (or peacetime) military and civilian manning levels (or strengths) in TDA units.

NARR: The two parameters of table I02--MPTML (military peacetime manning level) and CPTML (civilian peacetime manning level)--allow the user to raise or lower the peacetime strengths of military and/or civilian personnel in TDA units.

MPTML is applied against the operating TDA military strengths supplied by the preprocessors. CPTML is applied against the authorized TDA civilian strengths supplied by the preprocessors.

A parameter value of 1.00 Effects no change
1.10 Raises the strength 10 percent
0.90 Lowers the strength 10 percent

Base Case Assumption: TDA military and civilian strengths are to be processed without modification of the values provided by the preprocessors.

```
**********************************************************************
****   I03 - TRANSIENTS PROPORTION
DEFN:  THE PERCENTAGE OF THE ARMY THAT IS IN TRANSIENT STATUS.
BASECASE VALUE:
       TRNPCT= .0230
----------------------------------------------------------------------
FORMAT OF ENTRY:  7 DIGITS PLUS DECIMAL (x.XXXXXX), COL 23 - 31.
----------------------------------------------------------------------
```

SUPPLEMENTAL NARRATIVE:

DEFN: The proportion of the total Army that is in transient status at any given time.

NARR: Table I03 provides assignment of a proportion of the Army strength which is to be considered to be in a transient status at any given time.

The parameter of I03, TRNPCT (transient percentage), is used in two workload calculations:

(1) The military population of each installation is decreased by its contribution to the transient population (MILPOP * TRNPCT).

(2) The total transient population is calculated as the TRNPCT proportion of the total Army strength (I06).

```
**********************************************************************
****    I05 - PCF INDIVIDUALS PROPORTION

DEFN:   THE PERCENTAGE OF THE ARMY THAT IS BEING HELD IN A
        PERSONNEL CONTROL FACILITY.
NARR:
BASECASE ASSUMPTION:
BASECASE VALUE:

        PCFPCT= .0024
----------------------------------------------------------------------
FORMAT OF ENTRY:  7 DIGITS PLUS DECIMAL (X.XXXXXX), COL 23 - 30.
----------------------------------------------------------------------
```

SUPPLEMENTAL NARRATIVE:

DEFN: The table I05 parameter, PCFPCT, allows the user to identify what proportion of the Army population is being held in personnel control facilities.

PCFPCT is applied against the total Army strength (I06) to determine the total number of personnel in PCFS. These personnel are distributed to those installations that have PCFS (as defined in the installation dictionary), affecting the values of two workloads:

(1) Number of personnel in PCFS is a direct computation.

(2) Military population in increased by the number of personnel computed in (1) above.

```
**********************************************************************
****  I08 - HOSPITAL PERCENT FULL & PERCENT MILITARY PATIENTS

        HOSPITAL WORKLOADS  -  M-DAY AND UPON MOBILIZATION

DEFN:   PCTFUL IS THE PROPORTION OF THE MAXIMUM POSSIBLE
         NUMBER OF FILLED BEDS WHICH ARE FILLED ON M-DAY.  IF
         D-DAY IS NOT THE SAME DAY AS M-DAY (I.E. IF PDI > 0),
         THEN PCTFUL SHOULD BE SET TO A VALUE WHICH REPRESENTS
         THE NUMBER OF NORMALLY FILLED BEDS PLUS A SUFFICIENT
         NUMBER TO REPRESENT THE PATIENTS WHICH ARE RETURNED TO
         CONUS FROM THE THEATER DURING THE PERIOD BETWEEN M-DAY
         AND D-DAY WHEN HOSTILITES ARE INCREASING.

         PCTMIL IS THE PERCENTAGE OF MILITARY HOSPITAL PATIENTS
         ON M-DAY.  THE MODEL ASSUMES THAT DEPENDENTS WILL BE
         REMOVED FROM THE ARMY HOSPITALS (TRANSFERRED TO CIVILIAN
         HOSPITALS OR RELEASED) ON M-DAY.

         PCTFUL=1.0 AND PCTMIL=1.0  ARE THE PROGRAM DEFUALT
         VALUES FOR EACH INSTALLATION HAVING HOSPITAL BEDS.

TEST-ONE VALUES:
        INST=ALL     PCTFUL(M-DAY)=0.70    PCTMIL(MOB)=.200
---------------------------------------------------------------------
FORMAT OF ENTRY:
        INST:    3 CHAR, LEFT-JUSTIFIED.
        PCTFUL:  3 DIGITS PLUS DECIMAL, (X.XX).
        PCTMIL:  3 DIGITS PLUS DECIMAL, (X.XX).
WHEN ENTRIES ARE MADE, THEY MUST ALIGN AS FOLLOWS:
        INST=XXX     PCTFUL(M-DAY)=X.XX    PCTMIL(MOB)=X.XX
---------------------------------------------------------------------
```

****
**** I09 - CONUS PATIENT RATES

DEFN: THE OFFICE OF THE SURGEON GENERAL AND HEALTH SERVICES COMMAND FURNISHED MEDICAL RATES WHICH WERE IN TERMS OF RATES PER THOUSAND FOR ANY ONE DAY. SINCE MOBREM COMPUTES THE MEDICAL WORKLOADS ONCE IN EACH TEN-DAY TIME PERIOD, THE RATES WERE MULTIPLIED BY TEN. IT WAS ALSO NECESSARY TO CONVERT THE RATES FROM A RATE PER THOUSAND BY DIVIDING BY 1000. FINALLY, ALL RATES WERE WERE CONVERTED TO PERCENTAGES.

CONUS PATIENT RATES

PATPCT = RATE OF ADMISSION TO HOSPITAL
DECPCT = DECEASED RATES OF PATIENTS
DSCPCT = DISCHARGE RATE (OF PATIENTS)
RECPCT = RETURN TO DUTY RATE (OF PATIENTS)

NOTE THAT THE DISCHARGE, DECEASED, AND RETURN TO DUTY RATES ARE ALL IN TERMS OF PERCENTAGE OF PATIENTS. RATES FURNISHED WERE IN TERMS OF POST MILITARY POPULATION AND WERE CONVERTED TO PERCENTAGES OF CONUS HOSPITAL PATIENTS.

TEST-ONE VALUES:

PATPCT= .0438800
DECPCT= .0171000
DSCPCT= .4558000
RECPCT= .5271000
PCTHOL= .0000000

FORMAT OF ENTRY: 9 DIGITS PLUS DECIMAL, (X.XXXXXXXXX), COL 38-4

APPENDIX G

STAGE I RUN VALUES, PACKAGE MEAN LEVELS, AND PACKAGE EFFECTS

This appendix tabulates the results of the parameter package analysis computations. To examine the sensitivity of manpower requirements to parameter package 12 runs of the MOBREM model were made with package settings per Table 2-5, Chapter 2. Table G-1 illustrates the results of these runs along with a baseline MOBREM run. Table G-2 tabulates the package level means by time period of all MOBREM runs for which the package was at the indicated low or high level. Table G-3 shows the difference in manpower requirements from the low mean value to the high mean value of the indicated package by time period, as computed from values in Table G-2.

Table G-1. Stage I Runs - Total Manpower Requirements
(excluding AMC depot-unique AFD codes)
(page 1 of 3 pages)

Time	Run 0[a]	Run 1	Run 2	Run 3	Run 4
M+10	324,238	452,160	314,747	335,348	448,540
M+20	331,110	499,854	321,244	331,925	471,162
M+30	375,800	592,348	369,204	372,989	553,474
M+40	392,119	638,731	390,018	419,133	595,976
M+50	428,895	665,729	400,099	448,620	621,594
M+60	469,947	700,014	413,528	476,763	653,537
M+90	513,187	820,210	483,429	527,632	769,027
M+120	534,662	866,267	502,887	555,636	808,520
M+150	541,751	874,375	505,269	563,483	814,387
M+180	539,040	869,007	502,847	560,492	809,629
M+210	534,619	860,395	499,068	555,711	801,896
M+240	534,494	859,837	498,935	555,662	801,611
M+270	534,121	859,125	498,551	555,274	800,968

[a]Baseline MOBREM April 1986 run.

Table G-1. Stage I Runs - Total Manpower Requirements
(excluding AMC depot-unique AFD codes)
(page 2 of 3 pages)

Time	Run 5	Run 6	Run 7	Run 8	Run 9
M+10	315,981	336,233	337,812	449,005	416,950
M+20	310,342	347,973	336,258	497,633	450,843
M+30	356,277	405,122	379,950	574,582	511,423
M+40	375,183	434,120	425,438	645,269	573,853
M+50	384,783	451,801	454,140	695,583	611,462
M+60	397,705	473,839	482,132	743,564	645,111
M+90	466,081	554,675	532,993	831,973	704,001
M+120	484,161	581,330	560,508	877,282	734,627
M+150	486,286	585,205	568,337	883,462	745,549
M+180	483,949	581,939	565,303	869,503	742,091
M+210	480,454	576,767	560,500	855,818	736,106
M+240	480,400	576,627	560,457	855,300	735,716
M+270	480,044	576,185	560,059	854,543	735,059

Table G-1. Stage I Runs - Total Manpower Requirements (excluding AMC depot-unique AFD codes) (page 3 of 3 pages)

Time	Run 10	Run 11	Run 12
M+10	421,102	314,950	415,158
M+20	437,174	319,379	424,384
M+30	509,323	356,866	474,788
M+40	541,783	398,699	535,159
M+50	558,233	422,686	571,186
M+60	578,716	443,619	602,060
M+90	677,992	481,456	657,102
M+120	704,480	501,579	686,999
M+150	707,556	508,181	696,809
M+180	704,029	505,824	693,426
M+210	698,522	502,078	687,844
M+240	698,244	501,964	687,606
M+270	697,694	501,561	687,023

Table G-2. Stage I Package Mean Levels
(page 1 of 5 pages)

Time	A: D-day to M-day		B: Workweek	
	Low	High	Low	High
M+10	378,203.816	381,460.527	433,819.188	325,845.141
M+20	393,403.574	397,958.148	463,508.344	327,853.477
M+30	445,099.629	464,291.289	535,989.547	373,401.289
M+40	499,591.781	495,968.539	588,461.883	407,098.465
M+50	533,946.281	513,706.340	620,630.930	427,021.469
M+60	565,541.305	536,223.055	653,833.750	447,931.023
M+90	622,526.133	628,569.117	743,384.156	507,710.984
M+120	652,771.906	657,940.563	779,695.859	531,016.781
M+150	660,970.063	662,179.484	787,023.539	536,126.734
M+180	656,106.500	658,566.422	781,281.172	533,392.195
M+210	649,676.141	652,850.203	773,430.617	529,096.211
M+240	649,450.586	652,608.883	773,053.008	529,007.547
M+270	648,919.969	652,094.297	772,401.891	528,612.336

Table G-2. Stage I Package Mean Levels
(page 2 of 5 pages)

Time	C: Training		D: Show rates	
	Low	High	Low	High
M+10	366,481.313	393,182.926	379,158.535	380,505.684
M+20	377,229.660	414,133.980	393,447.961	397,913.621
M+30	429,646.730	479,744.184	451,905.715	457,485.051
M+40	469,115.750	526,444.344	494,604.039	500,956.098
M+50	491,408.145	556,244.414	519,709.125	527,943.305
M+60	513,456.426	588,308.102	545,835.141	555,929.414
M+90	578,343.523	672,751.508	619,844.602	631,250.539
M+120	602,455.492	708,257.492	649,381.828	661,330.695
M+150	608,274.828	714,875.242	655,934.820	667,214.898
M+180	605,360.969	709,312.711	652,452.945	662,220.086
M+210	600,678.695	701,848.203	646,886.016	655,640.211
M+240	600,477.367	701,582.258	646,656.570	655,403.125
M+270	599,988.438	701,025.563	646,143.617	654,870.633

Table G-2. Stage I Package Mean Levels
(page 3 of 5 pages)

Time	E: Hospital		F: Deploying MTOE	
	Low	High	Low	High
M+10	380,561.121	379,103.086	380,399.762	379,264.445
M+20	395,380.109	395,981.504	397,563.684	393,798.008
M+30	454,438.461	454,952.512	456,698.004	452,692.918
M+40	497,336.902	498,223.328	500,582.059	494,977.902
M+50	522,572.309	525,080.461	527,666.617	519,986.055
M+60	549,148.242	552,616.227	555,605.703	546,158.984
M+90	624,035.883	627,058.766	631,070.906	620,024.117
M+120	654,459.883	656,252.531	662,205.156	648,507.281
M+150	661,226.266	661,923.297	668,280.414	654,869.227
M+180	657,672.656	657,000.336	663,203.844	651,469.258
M+210	651,963.297	650,562.898	656,548.227	645,978.047
M+240	651,735.008	650,324.820	656,290.023	645,769.805
M+270	651,214.430	649,799.813	655,759.758	645,254.477

Table G-2. Stage I Package Mean Levels
(page 4 of 5 pages)

Time	G: Nondeploying MTOE		H: TDA	
	Low	High	Low	High
M+10	377,829.313	381,834.996	378,990.086	380,674.090
M+20	391,255.094	400,106.660	385,207.469	406,154.332
M+30	447,833.262	461,557.680	441,133.512	468,257.398
M+40	491,376.277	504,183.879	482,111.848	513,448.391
M+50	517,460.336	530,192.211	506,426.039	541,226.508
M+60	544,139.406	557,625.141	531,818.742	569,945.656
M+90	615,977.734	635,117.469	605,137.711	645,957.078
M+120	644,999.766	665,712.789	633,384.234	677,328.711
M+150	651,783.516	671,366.102	639,476.273	683,673.484
M+180	648,404.016	666,269.008	636,137.898	678,535.070
M+210	642,898.617	659,627.711	630,821.250	671,705.313
M+240	642,692.914	659,366.867	630,663.164	671,396.477
M+270	642,176.758	658,837.500	630,177.039	670,837.133

Table G-2. Stage I Package Mean Levels
(page 5 of 5 pages)

Time	I: Other personnel	
	Low	High
M+10	379,977.762	379,686.461
M+20	395,145.488	396,216.309
M+30	453,518.172	455,872.813
M+40	497,401.199	498,159.160
M+50	524,605.445	523,047.090
M+60	552,387.320	549,377.359
M+90	626,719.023	624,376.078
M+120	656,644.961	654,067.297
M+150	662,388.242	660,761.492
M+180	657,378.211	657,294.781
M+210	650,809.344	651,716.891
M+240	650,584.609	651,475.055
M+270	650,053.711	650,960.430

Table G-3. Stage I Package Effects
(page 1 of 3 pages)

Time	A: D-day to M-day	B: Workweek	C: Training
M+10	3,256.710	-107,974.049	26,701.609
M+20	4,554.579	-135,654.881	36,906.329
M+30	19,191.669	-162,588.275	50,097.448
M+40	-3,623.250	-181,363.439	57,328.589
M+50	-20,239.941	-193,609.492	64,836.289
M+60	-29,318.251	-205,902.729	74,851.681
M+90	6,042.979	-235,673.188	94,407.989
M+120	5,168.669	-248,679.090	105,802.009
M+150	1,209.431	-250,896.807	106,600.399
M+180	2,459.931	-247,888.986	103,951.757
M+210	3,174.060	-244,334.400	101,169.529
M+240	3,158.299	-244,045.467	101,104.902
M+270	3,174.330	-243,789.568	101,037.139

Table G-3. Stage I Package Effects
(page 2 of 3 pages)

Time	D: Show rate	E: Hospital	F: Deploying MTOE
M+10	1,347.170	-1,458.040	-1,135.310
M+20	4,465.659	601.390	-3,765.669
M+30	5,579.319	514.050	-4,005.079
M+40	6,352.060	886.419	-5,604.149
M+50	8,234.189	2,508.149	-7,680.579
M+60	10,094.259	3,467.989	-9,446.718
M+90	11,405.930	3,022.878	-11,046.790
M+120	11,948.859	1,792.639	-13,697.879
M+150	11,280.059	697.039	-13,411.208
M+180	9,767.149	-672.301	-11,734.588
M+210	8,754.179	-1,400.411	-10,570.178
M+240	8,746.578	-1,410.211	-10,520.238
M+270	8,727.008	-1,414.621	-10,505.298

Table G-3. Stage I Package Effects
(page 3 of 3 pages)

Time	G: Nondeploying MTOE	H: TDA	I: Other personnel
M+10	4,005.680	1,684.000	-291.300
M+20	8,851.559	20,946.860	1,070.820
M+30	13,724.409	27,123.899	2,354.629
M+40	12,807.590	31,336.541	757.979
M+50	12,731.869	34,800.469	-1,558.379
M+60	13,485.728	38,126.910	-3,009.958
M+90	19,139.731	40,819.362	-2,342.929
M+120	20,713.049	43,944.500	-2,577.669
M+150	19,582.598	44,197.199	-1,636.748
M+180	17,864.989	42,397.172	-83.411
M+210	16,729.089	40,884.051	907.549
M+240	16,673.959	40,733.318	890.429
M+270	16,660.740	40,660.099	906.718

APPENDIX H

STAGE II RUN VALUES, PARAMETER MEAN LEVELS, AND PARAMETER EFFECTS

Similar to Appendix G, this appendix tabulates the results of the individual parameter analysis computations. An additional 16 runs of MOBREM were made to show the effects of five identified parameters which were the components of the three packages to which manpower requirements were most sensitive (excluding workweek). Table H-1 records these results for parameter settings shown in Table 4-2, Chapter 4. Table H-2 shows the mean values of those runs for which the parameters were set at the indicated levels. Table H-3 tabulates the difference in personnel requirements from the low mean value to the high mean value of each parameter, as computed from values given in Table H-2.

Table H-1. Stage II Runs - Total Manpower Requirements (excluding AMC depot-unique AFD codes) (page 1 of 3 pages)

Time	Run 13	Run 14	Run 15
M + 10	318,671	329,699	329,699
M + 20	314,747	336,395	330,088
M + 30	354,932	386,117	378,267
M + 40	367,936	408,367	399,497
M + 50	403,887	419,657	410,497
M + 60	442,291	467,061	457,824
M + 90	479,470	530,954	520,121
M + 120	498,009	550,088	538,674
M + 150	504,354	556,261	544,653
M + 180	501,839	553,378	541,852
M + 210	497,962	548,705	537,348
M + 240	497,845	548,620	537,285
M + 270	497,494	548,228	536,923

Time	Run 16	Run 17	Run 18
M + 10	329,699	318,570	329,800
M + 20	336,397	322,303	335,062
M + 30	386,113	367,756	381,050
M + 40	408,367	386,117	398,924
M + 50	419,657	393,726	436,697
M + 60	467,061	438,164	479,264
M + 90	530,954	495,461	525,591
M + 120	550,088	510,144	548,905
M + 150	556,261	515,474	556,248
M + 180	553,378	512,931	553,376
M + 210	548,705	508,947	548,705
M + 240	548,620	508,837	548,619
M + 270	548,228	508,457	548,230

Table H-1. Stage II Runs - Total Manpower Requirements (excluding AMC depot-unique AFD codes) (page 2 of 3 pages)

Time	Run 19	Run 20	Run 21
M + 10	329,699	318,570	318,570
M + 20	330,091	316,118	316,122
M + 30	378,266	360,047	360,043
M + 40	399,497	377,522	377,521
M + 50	410,497	384,876	384,875
M + 60	457,824	429,272	429,272
M + 90	520,121	485,069	485,069
M + 120	538,674	499,171	499,171
M + 150	544,653	504,365	504,365
M + 180	541,852	501,838	501,838
M + 210	537,348	497,962	497,962
M + 240	537,285	497,845	497,845
M + 270	536,923	497,496	497,496

Time	Run 22	Run 23	Run 24
M + 10	318,570	329,800	329,800
M + 20	322,310	328,738	335,062
M + 30	367,750	373,177	381,050
M + 40	386,115	390,091	398,924
M + 50	393,726	428,029	436,697
M + 60	438,164	469,990	479,264
M + 90	495,461	514,637	525,591
M + 120	510,144	537,525	548,905
M + 150	515,474	544,639	556,248
M + 180	512,931	541,851	553,376
M + 210	508,947	537,346	548,705
M + 240	508,837	537,285	548,619
M + 270	508,458	536,920	548,230

Table H-1. Stage II Runs - Total Manpower Requirements
(excluding AMC depot-unique AFD codes)
(page 3 of 3 pages)

Time	Run 25	Run 26	Run 27	Run 28
M + 10	329,800	318,671	318,671	318,671
M + 20	328,738	320,954	314,747	320,954
M + 30	373,177	362,641	354,932	362,641
M + 40	390,091	376,507	367,936	376,507
M + 50	428,029	412,291	403,887	412,291
M + 60	469,990	451,301	442,291	451,301
M + 90	514,637	489,943	479,470	489,943
M + 120	537,525	508,924	498,009	508,924
M + 150	544,639	515,458	504,354	515,458
M + 180	541,851	512,932	501,839	512,932
M + 210	537,346	508,946	497,962	508,946
M + 240	537,285	508,838	497,845	508,838
M + 270	536,920	508,457	497,493	508,457

Table H-2. Stage II Parameter Mean Levels (no. of personnel)
(page 1 of 3 pages)

Time	A: D-day to M-day		C1: Training load	
	Low	High	Low	High
M + 10	324,235.500	324,134.500	318,620.500	329,749.500
M + 20	324,875.250	326,228.074	318,531.945	332,571.387
M + 30	367,950.047	373,045.031	361,342.852	379,652.145
M + 40	383,364.598	392,875.453	377,020.207	399,219.848
M + 50	420,226.047	402,188.977	398,694.977	423,720.195
M + 60	460,711.742	448,080.492	440,257.242	468,534.945
M + 90	502,410.395	507,901.297	487,485.797	522,825.992
M + 120	523,341.137	524,519.445	504,062.191	543,798.183
M + 150	530,174.891	530,188.344	509,912.848	550,450.391
M + 180	527,499.641	527,499.891	507,385.047	547,614.297
M + 210	523,239.797	523,240.598	503,454.348	543,026.047
M + 240	532,146.895	523,146.844	503,341.297	542,952.344
M + 270	522,775.371	522,776.324	502,976.008	542,575.297

Table H-2. Stage II Parameter Mean Levels (no. of personnel)
(page 2 of 3 pages)

Time	C2: Training equipment		H1: TDA fill level	
	Low	High	Low	High
M + 10	324,185.000	324,185.000	324,185.000	324,185.000
M + 20	325,552.785	325,550.723	322,423.688	328,679.637
M + 30	370,496.691	370,498.566	366,605.195	374,389.805
M + 40	388,119.949	388,120.297	383,761.543	392,478.508
M + 50	411,207.535	411,207.668	406,822.129	415,592.992
M + 60	454,395.984	454,395.984	449,844.441	458,947.547
M + 90	505,155.941	505,155.941	499,824.395	510,487.297
M + 120	523,930.160	523,930.160	518,344.992	529,515.492
M + 150	530,181.641	530,181.641	524,502.844	535,860.297
M + 180	527,499.766	527,499.766	521,845.047	533,154.297
M + 210	523,240.156	523,240.156	517,654.598	528,825.797
M + 240	523,146.875	523,146.875	517,565.047	528,728.500
M + 270	522,775.988	522,775.730	517,208.176	528,343.125

Table H-2. Stage II Parameter Mean Levels (no. of personnel)
(page 3 of 3 pages)

Time	H2: Base ops fill	
	Low	High
M + 10	324,185.000	324,185.000
M + 20	325,552.023	325,551.473
M + 30	370,497.711	370,497.551
M + 40	388,120.047	388,120.195
M + 50	411,207.668	411,207.535
M + 60	454,395.984	454,395.984
M + 90	505,155.941	505,155.941
M + 120	523,930.160	523,930.160
M + 150	530,181.641	530,181.641
M + 180	527,499.766	527,499.766
M + 210	523,240.156	523,240.156
M + 240	523,146.875	523,146.875
M + 270	522,775.988	522,775.730

Table H-3. Stage II Parameter Effects (no. of personnel)

Time	A: D-day to M-day	C1: Training load	C2: Training equipment	H1: TDA fill level	H2: Base ops fill
M + 10	-101.000	11,129.000	.000	.000	.000
M + 20	1,352.830	14,039.440	-2.060	6,255.950	-.550
M + 30	5,094.990	18,309.290	1.879	7,784.609	-.160
M + 40	9,510.860	22,199.640	.350	8,716.959	.150
M + 50	-18,037.070	25,025.220	.130	8,770.870	-.130
M + 60	-12,631.250	28,277.699	.000	9,103.100	.000
M + 90	5,490.899	35,340.199	.000	10,662.899	.000
M + 120	1,178.300	39,736.000	.000	11,170.500	.000
M + 150	13.449	40,537.550	.000	11,357.449	.000
M + 180	.250	40,229.250	.000	11,309.250.	.000
M + 210	.800	39,571.699	.000	11,171.199	.000
M + 240	-.050	39,611.050	.000	11,163.449	.000
M + 270	.949	39,599.290	-.260	11,134.949	-.260

APPENDIX I

MANPOWER REQUIREMENT EQUATION (MRE) WORKLOADS

This appendix defines the workloads used in the MREs which compute the non-AMC depot-unique support manpower requirements. Workload description is presented in Table I-1 below.

Table I-1. Workload Descriptions

Workload	Workload description
TDA civ	Number of TDA civilian personnel at installation
TDA mil	Number of TDA military personnel at installation
TDA total	Number of TDA military and civilian personnel at installation
AC MTOE	Number of personnel in active component MTOE units not in the fill/train/POM cycle or inprocessing
Instl mil pop	Sum of MTOE and military TDA personnel, trainees, personnel in confinement, prisoners, and new theater patients
Instl pop	Sum of MTOE and TDA personnel, excluding personnel in confinement, prisoners, and new theater patients
Trainees	Number of trainees at installation and trainees arriving at installation reception station
Patient beds	Number of theater and CONUS patients distributed to installation Army hospital plus number of CONUS patients distributed to installation barracks beds
Prisoners on post	Number of personnel in installation prisons
Personnel in PCF	Number of personnel in control facilities

APPENDIX J

AFD CODE SENSITIVITY TO STAGE 2 PARAMETERS

This appendix lists for the nondepot-unique AFD codes the second stage parameter which explains the most variation (sum of squares) for each time period. The letter A represents the D-day to M-day parameter. C1 is the training load adjustment factor parameter, H1 the TDA fill level. The equipment onhand on M-day (C2) and the base operations equipment fill (H2) are never the most important. The "**" notation indicates that the manpower requirements for that AFD code at that time period do not change from run to run; that is, there is no variation.

FACTOR ACCOUNTING FOR THE LARGEST PERCENT OF THE SUM OF SQUARES (** - NO VARIANCE FOR THIS AFD)

AFD CODE	M+ 10	M+ 20	M+ 30	M+ 40	M+ 50	M+ 60	M+ 90	M+120	M+150	M+180	M+210	M+240	M+270
916A - LEA	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1
916B - LEB	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
916H - LEH	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
916K - LEK	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
916M - LEM	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
916N - LEN	C1	H1	A	A	A	A	C1	C1	C1	C1	C1	C1	C1
916U - LEU	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
916X - LE#	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
917A - LF	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
106 - TH	C1	C1	A	A	A	A	A	C1	C1	C1	C1	C1	C1
551 - R	**	**	**	**	**	**	**	**	**	**	**	**	**
904F - KF	**	A	A	A	A	A	A	A	**	**	**	**	**
914V - LDFU	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1
914W - LDFX	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1
914X - LD#	**	**	**	**	**	**	**	**	**	**	**	**	**
916T - LET	A	A	A	A	A	A	A	A	**	**	**	**	**
198 - TB	**	**	**	**	**	**	**	**	**	**	**	**	**
301A - HAA	C1	C1	C1	C1	A	A	C1	C1	C1	C1	C1	C1	C1
301B - HAB	C1	C1	C1	C1	A	A	C1	C1	C1	C1	C1	C1	C1
301C - HAC	C1	C1	C1	C1	A	A	C1	C1	C1	C1	C1	C1	C1
301D - HAD	C1	C1	C1	A	A	A	C1	C1	C1	C1	C1	C1	C1
301E - HAE	C1	C1	A	A	A	A	C1	C1	C1	C1	C1	C1	C1
301F - HAFY	C1	C1	C1	A	A	A	C1	C1	C1	C1	C1	C1	C1
302 - HB	C1	C1	C1	C1	A	A	C1	C1	C1	C1	C1	C1	C1
303 - HC	C1	C1	C1	C1	A	A	C1	C1	C1	C1	C1	C1	C1
304 - HD	C1	C1	C1	C1	A	A	C1	C1	C1	C1	C1	C1	C1
305 - HE	C1	C1	C1	C1	A	A	C1	C1	C1	C1	C1	C1	C1
306 - HF	C1	C1	C1	C1	A	A	C1	C1	C1	C1	C1	C1	C1
307 - HG	C1	C1	A	A	A	A	C1	C1	C1	C1	C1	C1	C1
311 - LBH	C1	C1	C1	C1	A	A	C1	C1	C1	C1	C1	C1	C1
312 - LBJ	C1	C1	C1	A	A	A	C1	C1	C1	C1	C1	C1	C1
313 - LDFY	C1	C1	C1	C1	A	A	C1	C1	C1	C1	C1	C1	C1
314 - LEY	C1	C1	C1	C1	A	A	C1	C1	C1	C1	C1	C1	C1
351 - PBR	**	**	**	**	**	**	**	**	**	**	**	**	**
361 - PBS	**	**	**	**	**	**	**	**	**	**	**	**	**
401 - DA	**	**	**	**	**	**	**	**	**	**	**	**	**
410X - DB#	**	**	**	**	**	**	**	**	**	**	**	**	**
906V - PBQ	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1
908C - SBC	C1	C1	A	A	A	A	C1	C1	C1	C1	C1	C1	C1
912B - LBB	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1
913X - LC#	**	**	**	**	**	**	**	**	**	**	**	**	**
9197 -	**	**	**	**	**	**	**	**	**	**	**	**	**
102 - TB	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1
104A - TD#	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1
104B - TDE	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1
105 - TE	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1
107 - TG	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1
851 - LCE	**	**	**	**	**	**	**	**	**	**	**	**	**
906W - PBFFD	**	**	**	**	**	**	**	**	**	**	**	**	**
912C - LBC	**	**	**	**	**	**	**	**	**	**	**	**	**
916L - LEL	**	**	**	**	**	**	**	**	**	**	**	**	**
907X - Q#	**	**	**	**	**	**	**	**	**	**	**	**	**
909F - V	**	**	**	**	**	**	**	**	**	**	**	**	**
907A - QAA	**	**	**	**	**	**	**	**	**	**	**	**	**
902J - CJ	**	**	**	**	**	**	**	**	**	**	**	**	**
110 - TJ	**	**	**	**	**	**	**	**	**	**	**	**	**

FACTOR ACCOUNTING FOR THE LARGEST PERCENT OF THE SUM OF SQUARES (** - NO VARIANCE FOR THIS AFOD

AFD CODE	M+ 10	M+ 20	M+ 30	M+ 40	M+ 50	M+ 60	M+ 90	M+120	M+150	M+180	M+210	M+240	M+270
308 - MH	C1	C1	A	A	A	A	A	C1	C1	C1	C1	C1	C1
415 - D3E	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
416H - D8F H	C1	H1	A	A	A	A	A	H1	C1	H1	C1	H1	H1
416X - D8F #	**	**	**	**	**	**	**	**	**	**	**	**	**
451 - J	**	**	**	**	**	**	**	**	**	**	**	**	**
501 - SA	C1	H1	A	A	A	A	C1	C1	C1	C1	C1	C1	C1
801 - E	**	**	**	**	**	**	**	**	**	**	**	**	**
901C - AC	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
901E - AE	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
901F - AF	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
9010 - A#	**	**	**	**	**	**	**	**	**	**	**	**	**
902A - CAE,CB	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
902C - CC	C1	H1	A	A	A	A	C1	C1	C1	C1	C1	C1	C1
902D - CD	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
902E - CE	A	H1	H1	A	A	A	C1	C1	C1	H1	C1	C1	H1
902F - CF	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
902G - CG	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
902H - CH	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1
902K - CK	**	**	**	**	**	**	**	**	**	**	**	**	**
902M - CM	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
902P - CP	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
903B - FB,FA	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
903C - FC	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
903D - FD	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
904A - KA	**	**	**	**	**	**	**	**	**	**	**	**	**
904C - KC	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
904D - KD	C1	C1	A	A	A	A	C1	C1	C1	C1	C1	C1	C1
904E - KE	C1	C1	A	A	A	A	A	C1	C1	C1	C1	C1	C1
904H - KH	C1	H1	H1	A	A	A	A	C1	C1	C1	C1	C1	C1
904V - KGC	C1	H1	A	A	A	A	A	C1	C1	C1	C1	C1	C1
904W - KGB,A	C1	C1	C1	A	A	C1	C1	C1	C1	C1	C1	C1	C1
905A - M	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
906C - PC	C1	C1	A	A	A	A	A	C1	C1	C1	C1	C1	C1
906D - PD	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
906E - PE	C1	C1	A	A	A	A	A	C1	C1	C1	C1	C1	C1
906U - PB#	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
906X - P#	**	**	**	**	**	**	**	**	**	**	**	**	**
907E - QAB	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
908B - SBB	C1	C1	A	A	A	A	C1	C1	C1	C1	C1	C1	C1
908X - S#	**	**	**	**	**	**	**	**	**	**	**	**	**
909A - U	**	**	**	**	**	**	**	**	**	**	**	**	**
909C - X	**	**	**	**	**	**	**	**	**	**	**	**	**
911A - LA	**	**	**	**	**	**	**	**	**	**	**	**	**
912X - LB#	C1	C1	A	A	A	A	C1	C1	C1	C1	C1	C1	C1
913F - LCF	C1	C1	A	A	A	A	C1	C1	C1	C1	C1	C1	C1
913G - LCG	C1	C1	A	A	A	A	C1	C1	C1	C1	C1	C1	C1
913J - LCJ	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
914A - LDA	**	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
914E - LDE	C1	H1	A	A	A	A	A	C1	C1	C1	C1	C1	C1
914Q - LDFA	**	H1	A	H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
914P - LDFB	C1	C1	A	A	A	A	C1	C1	C1	C1	C1	C1	C1
914S - LDFJ	C1	C1	A	A	A	A	A	C1	C1	C1	C1	C1	C1
914T - LDFK	C1	C1	A	A	A	A	C1	C1	C1	C1	C1	C1	C1
914U - LDFN	C1	C1	A	A	A	A	C1	C1	C1	C1	C1	C1	C1

APPENDIX K

SPONSOR'S COMMENTS

DEPARTMENT OF THE ARMY
U.S. ARMY MANPOWER REQUIREMENTS AND DOCUMENTATION AGENCY
FORT BELVOIR, VIRGINIA 22060-5580

REPLY TO ATTENTION OF
PEMS-RO (570-5a)

18 NOV 1987

MEMORANDUM FOR: DIRECTOR, U.S. ARMY CONCEPTS ANALYSIS AGENCY, ATTN: CSCA-SPM 5-5d, 8120 WOODMONT AVENUE, BETHESDA, MD 20814-2797

SUBJECT: Mobilization Policy Evaluation Study (MOPES) Sponsor Review

1. As study sponsor, USAMARDA has reviewed the MOPES Model Sensitivity Analysis Study. Our comments and study critique are enclosed.

2. Your staff is to be commended for its thorough "first time" review of the Policy module of the Mobilization Requirements Model. Your study findings that the model reacts as it should to the evolving policies and parameters have helped increase our confidence in the Model's design methodology.

3. CAA prepared distribution list is annotated and enclosed. Suggest you add Chief, Army Reserve, (OCAR) to your general distribution list.

4. Reference:

a. Letter, USACAA, ATTN: CSCA-SPM, 5 Oct 87, subject: Model Sensitivity Analysis for Sponsor Review.

b. Letter, HQDA, Chief of Staff, ATTN: DACS-DMO, 19 Oct 83, subject: Responsibility of Study Performing and Study Sponsoring Organization.

2 Encls

MAX L. BUFF
Colonel, AD
Commanding

STUDY CRITIQUE

(This document may be modified to add more space for responses to questions.)

1. Are there any editorial comments? YES If so, please list on a separate page and attach to the critique sheet.

2. Identify any key issues planned for analysis that are not adequately addressed in the report. Indicate the scope of the additional analysis needed. N/A

3. How can the methodology used to conduct the study be improved?

No suggestion to improve here due to the huge Data Base involved.

4. What additional information should be included in the study report to more clearly demonstrate the bases for the study findings?

Due to the interdependency of many Mobilization factors, USAMARDA packaged Parameters, thus allowing study of 25 parameters segregated into 9 packages.

5. How can the study findings be better presented to support the needs of both action officers and decisionmakers? N/A

6. How can the written material in the report be improved in terms of clarity of presentation, completeness, and style? N/A

Encl 1

STUDY CRITIQUE (continued)

7. How can figures and tables in the report be made more clear and helpful? N/A - very clear and concise

8. In what way does the report satisfy the expectations that were present when the work was directed? Report verified the importance and impact to the Policies and Environment which are key to a successful mobilization effort.

In what ways does the report fail to satisfy the expectations?

N/A

9. How will the findings in this report be helpful to the organization which directed that the work be done? Findings, in general indicated that the Model reacted to policy changes in an appropriate manner.

If they will not be helpful, please explain why not.

N/A

10. Judged overall, how do you rate the study? (circle one)

Poor Fair Average Good Excellent

LTC F. E. HILSHER
USAMRDA

DRAFT

EDITORIAL COMMENTS PAGE 2-5

In regard to work week, in future model runs, USAMARDA plans to follow DoD instruction 1109.1 which prescribes a 60 hour work week for the first 30 days of mobilzation and 48 hour work week at D + 31 and after. This change should more accurately project requirements for the CONUS Base.

APPENDIX L

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GLOSSARY

1. ABBREVIATIONS, ACRONYMS, AND SHORT TERMS

AC	Active Component
act	activity
AFD	Army Functional Dictionary
AMC	Army Materiel Command
ANOVA	analysis of variance
ATRRS	Army Training Requirements and Resources System
CAA	US Army Concepts Analysis Agency
civ	civilian
COMPO 1	Active Army units
COMPO 2	Army National Guard units
COMPO 3	Army Reserve units
COMPO 4	new and unmanned units
CONUS	continental United States
DA	Department of the Army
DCSOPS	Deputy Chief of Staff for Operations and Plans
DCSPER	Deputy Chief of Staff for Personnel
D-day	day of hostilities
equip	equipment
FMTB	Force Mobilization Troop Basis
grps	groups
IMA	individual mobilization augmentee
instl	installation
IRR	Individual Ready Reserve
lub	lubricating
M-day	mobilization day

M+day	days during mobilization after M-day
MACOM	major Army command
maint	maintenance
med	medical
mil	military
mgt	management
MOBPES	Mobilization Policy Evaluation Study
MOBREM	Mobilization Base Requirements Model
MOBREPS	Mobilization Base Resource Planning System
MOBTDA	mobilization table(s) of distribution and allowances
MTBSP	Mobilization Troop Basis Stationing Plan
MTMC	Military Traffic Management Command
MTOE	modification table(s) of organization and equipment
MRE	manpower requirements equation
NARDAC	Navy Regional Data Automation Center
NATO	North Atlantic Treaty Organization
ops	operations
PCF	personnel control facilities
per	personnel
POM	preparation for overseas movement
pop	population
RC	Reserve Component
rqmt	requirement
surg	surgical
TAADS	The Army Authorization Documents System
TAEDP	Total Army Equipment Distribution Program
TDA	table(s) of distribution and allowances

USAMARDA	US Army Manpower Requirement and Documentation Agency
wkld	workload

2. DEFINITIONS

full mobilization
Mobilization of all RC units in the existing approved force structure, all individual reservists, and the materiel resources needed for this expanded force structure.

individual mobilization augmentee
A trained member of the selected Reserve who is assigned to an AC wartime-required (MOBTDA or MTOE) position that is not authorized in peacetime.

Individual Ready Reserve
A trained member of the Ready Reserve who is not assigned to the selected Reserve unit but is available as a filler or replacement for mobilization.

partial mobilization
Mobilization of up to one million persons of the Ready Reserve (units or individuals) for up to 24 months as an augmentation of the active Armed Forces (short of full mobilization).

total mobilization
Mobilization involving expansion of the active Armed Forces by organizing and/or activating additional units beyond the existing approved force structure to respond to the requirements of the emergency, and the mobilization of all national resources needed, to include production facilities, to sustain such forces.

unmanned unit
A unit having a mobilization or fill schedule and for which equipment stocks exist, are programed, or could be made available under emergency conditions to meet required delivery date, but which has no manpower programed or authorized during peacetime.

CAA	**MOBILIZATION POLICY EVALUATION STUDY (MOBPES) MODEL SENSITIVITY ANALYSIS**	**STUDY SUMMARY CAA-SR-87-19**

THE REASON FOR PERFORMING THE STUDY was to perform a sensitivity analysis of the Mobilization Base-Requirements Model (MOBREM) and to develop a methodology for evaluating the effect of parameter changes on manpower requirements.

THE PRINCIPAL FINDINGS are:

(1) The length of the workweek is by far the most important factor with more than a 250,000-person savings using a 60-hour workweek as opposed to a 40-hour workweek.

(2) Fixing workweek at 60 hours, the training load adjustment factor is the most important parameter, followed by the M-day to D-day relationship and the table of distribution and allowances (TDA) fill level. To minimize MOBREM manpower requirements output, the training load adjustment factor and TDA fill level inputs should be set at the minimum of their acceptable ranges.

(3) Although setting the MOBREM training load and the TDA fill levels to their minimum acceptable values reduces output manpower requirements, the resultant impact on capability of the continental United States (CONUS) TDA to fulfill its mobilization mission is not reflected in MOBREM.

(4) The M-day to D-day relationship has its greatest effect at M+50 and M+60, manpower requirements being largest when M-day equals D-day.

(5) Regression equations derived herein can provide timely estimates of aggregated CONUS support manpower requirements for non-AMC depot-unique codes within the range of data.

THE MAIN ASSUMPTION is that the Department of the Army mobilization planning systems (e.g., Mobilization Troop Basis Stationing Plan (MTBSP), The Army Authorization Document System (TAADS), Total Army Equipment Distribution Program (TAEDP), Army Training Requirements and Resources System (ATRRS)) provide authoritative sources on which to base MOBREM's requirement computations.

THE PRINCIPAL LIMITATIONS which affect the findings are: (1) MOBREM operates in a requirements mode and does not constrain requirements by the availability of resources or by facility capabilities, and (2) MOBREM inputs do not consider expansion of the force structure or the industrial base.

THE SCOPE OF THE STUDY

(1) MOBREM computes CONUS base manpower support requirements for a North Atlantic Treaty Organization (NATO)/Warsaw Pact scenario requiring full mobilization.

(2) MOBREM produces manpower requirements for 11 major CONUS Army commands, 133 mobilization installations, and 211 Army Functional Dictionary support codes. Manpower requirements are computed for 13 mobilization time periods: 10, 20, 30, 40, 50, 60, 90, 120, 150, 180, 210, 240, and 270 days after mobilization.

THE STUDY OBJECTIVES are: (1) to perform a sensitivity analysis of MOBREM, (2) evaluate mobilization policies using MOBREM parameters, and (3) provide insights for policy improvements.

THE BASIC APPROACH was first to identify the parameters and variables to be analyzed, and to develop an experimental design for running MOBREM which was manageable within the constraints of the computer resources available. The MOBREM runs and the statistical analyses were done in stages. The first stage screened packages of parameters to determine which packages affect the CONUS support manpower requirements the most. The second stage analyzes in more depth the parameters in the most important packages and develops regression equations which relate these parameters to manpower requirements.

THE STUDY SPONSOR was initially the Deputy Chief of Staff for Operations and Plans, Headquarters, Department of the Army (HQDA); during the study, the sponsor changed to the Deputy Chief of Staff for Personnel, HQDA, who established the objectives and monitored study activities.

THE STUDY EFFORT was directed by Dr. Janet Fowler, Strategy and Plans Directorate.

COMMENTS AND QUESTIONS may be sent to the Director, US Army Concepts Analysis Agency, ATTN: CSCA-SP, 8120 Woodmont Avenue, Bethesda, Maryland 20814-2797.

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